

# *The Magnetic Fountain*

*The secrets of vitalised  
water and magnetism*



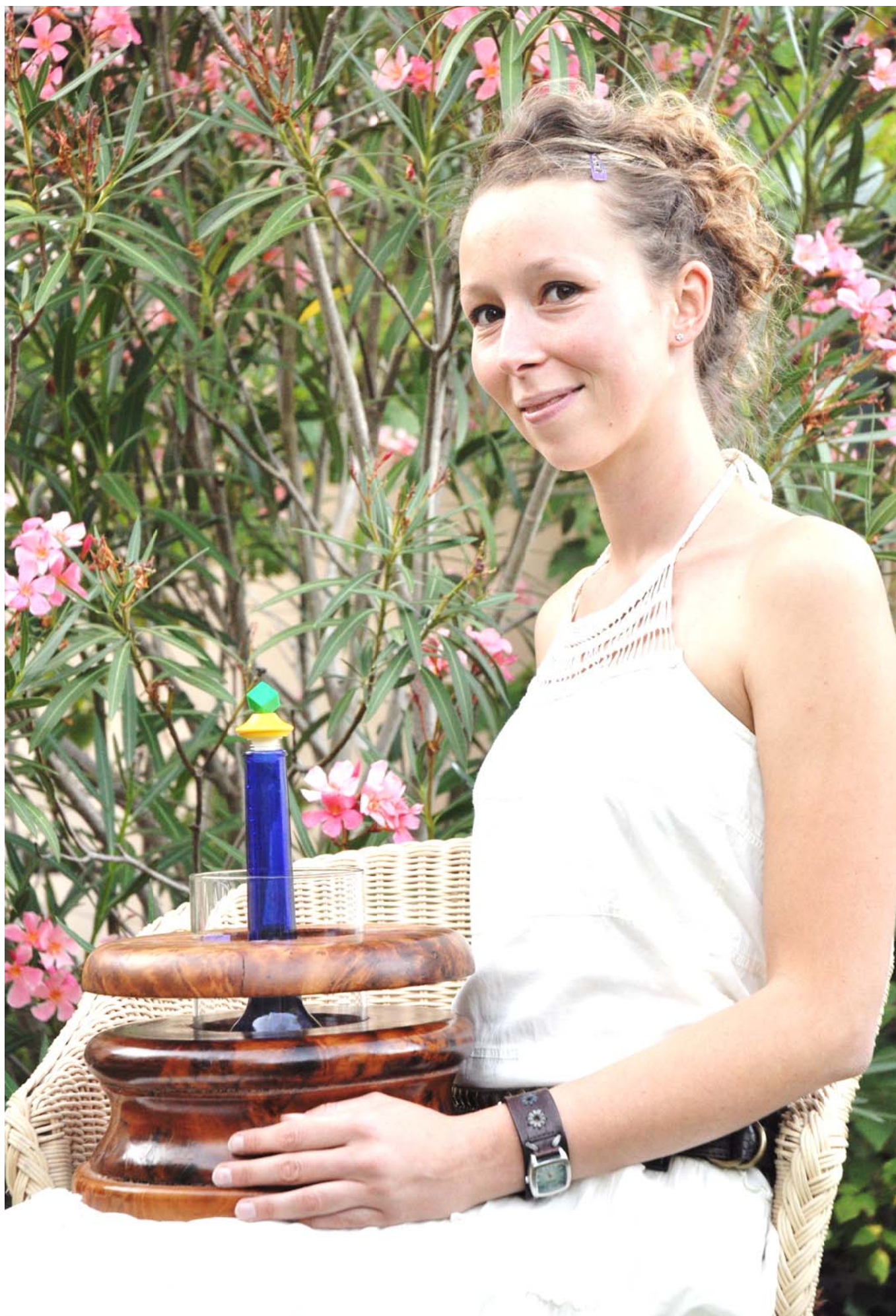
**David MORAND & Thierry KELLER**





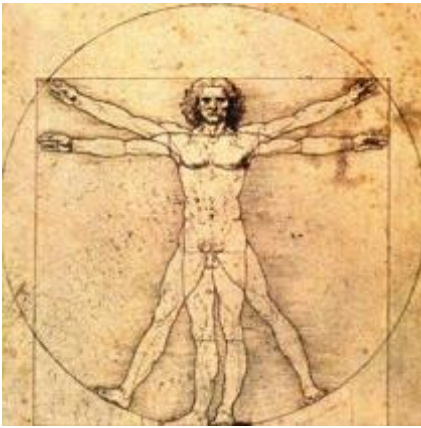
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Charlotte, she uses the *Magnetic Fountain*.





Progress is an irregular process, sometimes fast for a short period and then very slow for a long time. Is it possible to accelerate or decelerate it, and how? In Auroville, for example, a handful of pioneers firmly believe that man can and must take control of his evolution. There are however private interests who believe they have everything to gain by preserving the status quo in many areas, possibly at the expense of others. Can a true well-being be built at the expense of others?

Scientific progress is also irregular: there is a time for everything, “a time to plant and a time to harvest what was planted”. The beginning of the twentieth century was a time of sowing, so we now have a lot to harvest. TESLA, SCHAUBERGER, BENVENISTE, and many others have sown for us, so let’s harvest! Let’s live! Let’s sow! The state of scientific knowledge is only a momentary consensus. Knowledge is not a fixed state but a dynamic process. The conservatives block these living processes.

We hereby present you a set of facts that are mostly unknown to the general public. Several sources are readily available if you wish to discover more. What is challenged will be questioned in turn, this way alternating the seasons of knowledge. There is always a period during which an innovation must be diffused, before being widely accepted. It is not illegal to be slightly ahead of one’s time. Vitalised water is now an indisputable scientific fact.



The Matrimandir in Auroville, India, is a construction dedicated to the invigorating and harmonic forces of nature. In Sanskrit, Matrimandir means “Temple of the Mother”. To use the poetic expression of these builders, this is where “the confluence of water, crystal and the sun’s rays symbolises the flow of life at the heart of our Mother Nature”.



Albert EINSTEIN and Nikola TESLA, in 1931 in New Jersey



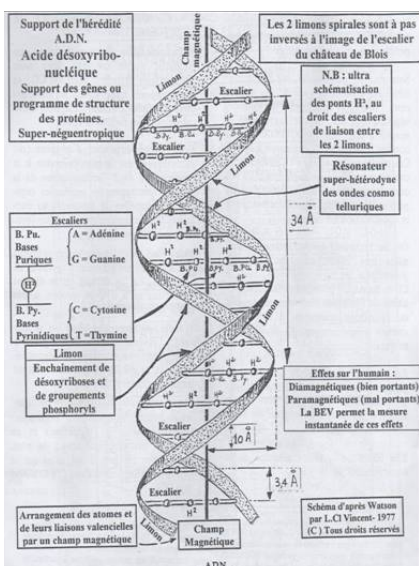
# Warning



Readers, we have a request...,

“It is very probable that, starting from the first pages, you are struck by a presentation that often goes against the accepted theories.

But if you're not one of those for whom science has said its last word on the day you left school or the faculty, and whether on the contrary, experience has taught you that you often need to revise and complete if not totally abandon the “primary truths” learned in school, you will recall that nuclear physics and electronics are completely changing your life. We can thus no longer use the word ‘impossible’ without promptly risking ridicule.



So I ask you not to oppose against what may seem to you, say: unlikely. (...)

I have been drinking energised

water for 15 years. I can say I'm immune to all diseases.”

Marcel VIOLET, 1961  
The Secret of the Patriarchs, p.5



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*Magnetic Fountain in* Switzerland. September 2009.





# Preface

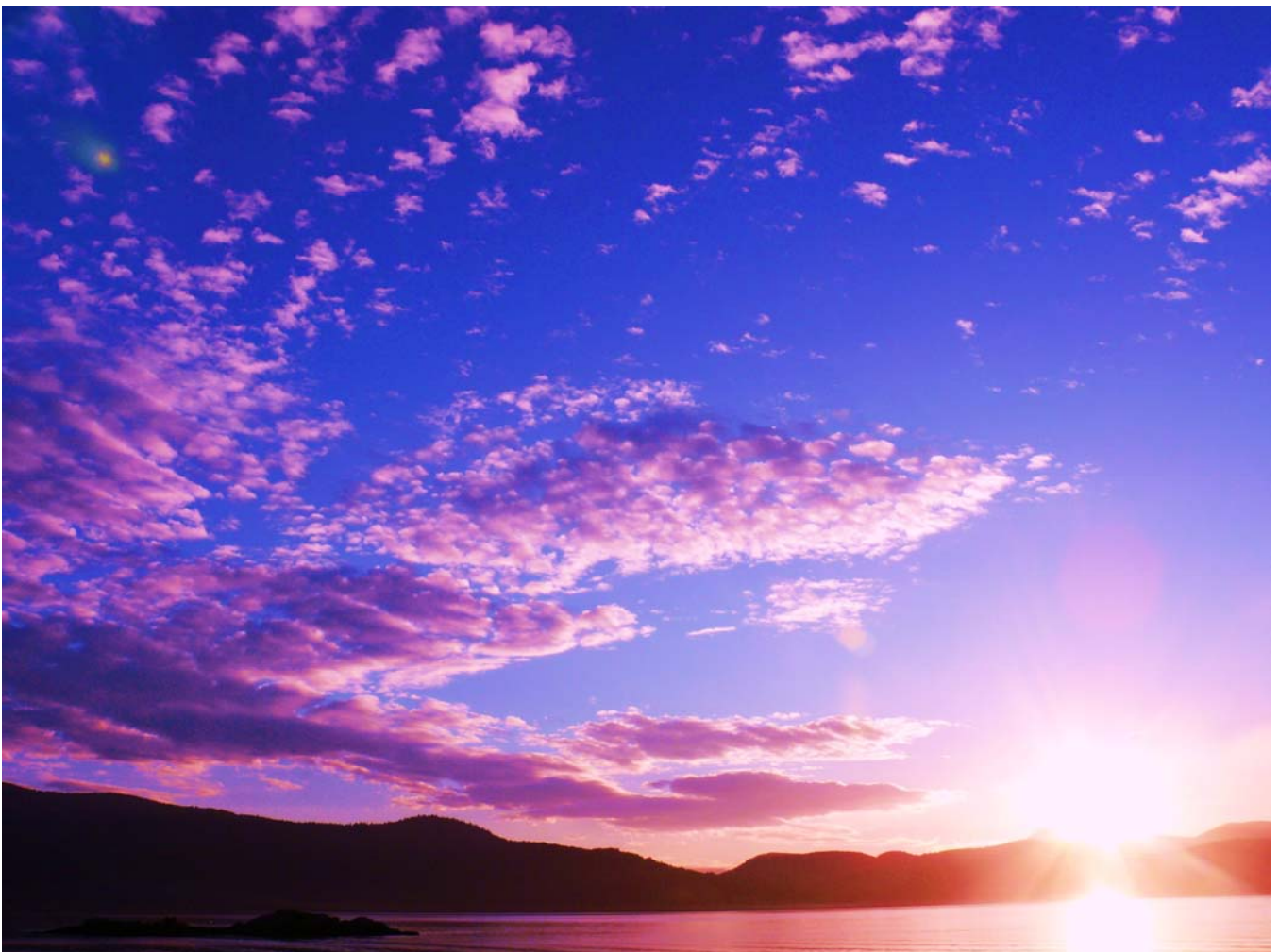
**Our company specialises on investigating the principles that already exist in nature: magnetism and its application on living beings.**

After numerous meetings with different researchers and multiple experiences in the fields of energy and magnetism, we have decided to use our technical knowledge for the creation of a product line that will improve our quality of life.

Our team is continuously working on the research and development of energy technologies. We focus on other useful solutions for the environment and human welfare in general, including for example, magneto-culture or magneto-protection.

For more information, please visit our website : [www.fontainemagnetique.fr](http://www.fontainemagnetique.fr)

While we live in an era where an increasing amount of new technologies emerge, magnetism and everything relating to it is still regarded by many as quackery. If you are amongst those who are skeptical vis-à-vis these technologies, we recommend you read the following pages. After all, we only implement the principles already existing in nature.







Stéphane, an economics professor at the Faculty of Strasbourg, and Robert BLEGER, a tireless scientific dowser, partners of the *Magnetic Fountain*.



“the most obvious sign  
of being in good health is being  
in a good mood”

Thierry







## *Let me guess...*

**You have a *Magnetic Fountain* and a dash of curiosity, you don't need anything else to begin. For those who want to discover, test and experiment for themselves... the following lines will be enough.**

The fountain releases a beneficial field, differing on whether you are above it or next to it. The fountain's magnetic vortex condenses inside the crystal cylinder.

To magnetise water or food, turn the ring... following your intuition. Drink magnetised water in the morning on an empty stomach, providing your body with high quality water. Place the water in the famous blue bottle or in an unleaded glass bottle.

That's it! Now it's up to you to make the best use of it for your well-being.

The ring in itself can also be used to magnetise a person (page 68). Itinerant therapists can obtain the ring separately, together with the universal DO (page 68). The set is wrapped in a velvet bag and protected by a practical case for transport.





Professor Piccardi, Physics and Chemistry Professor in the University of Florence, perfected a water activation method. Water “activates” itself when in contact with a glass bulb containing a drop of mercury and neon at low pressure. The reaction produces a red light that is shone through the neon and activates the water without changing its chemical composition. While maintaining a constant temperature and pressure, results in his chemical tests varied depending on whether he used normal water or “activated” water. The activated water contained properties that the normal water did not have; it acted on calcium deposits.



## *Magnetised water*

Meanwhile, other researchers confirmed Piccardi’s findings on magnetised water with low frequency electromagnetic rays.

As we have seen, it is possible to activate water by putting it in contact with a bulb that contains mercury. This method may seem outdated in modern society, but it is important to know that it is still used in some factories for descaling boilers.

If a magnet is placed in water for an hour, the water will become magnetised. Once the magnet is removed from the water, the effect will progressively fade away in seven days. Dr. Bansal from New Delhi explains how to obtain a magnetised beverage in his book “*Magnet Therapy*” (1976). Simply place the bottle containing the liquid on the opposite side of a magnet. In fact, the best way consists in exposing the water to a magnetic field, even if it is weak, during a short moment. The waters’ physical properties change but its chemical composition remains the same always. Magnetised water obtained in this manner remains effective for at least five days.

To achieve this goal, we put forth a device named the “**Magnetic Fountain**”, through which water is magnetised by induction. The “**Magnetic Fountain**” is cylindrical and contains several anisotropic ceramics. The beverage to be magnetised is placed with the bottle in the receptacle provided for that purpose. Instantly, the water or beverage is magnetised.

The modified beverage remains effective during five days; after the seventh day, it recovers its initial state. The phenomenon of water magnetisation has a simple explanation. The magnetic fields, like those of the cosmos, deform the water's structure. We know that water has the structure of a solid. That is, a continuous assembly of molecules with a specific meaning. When passing the water through magnetic fields, the direction, speed and displacement of the ions are altered. The water becomes magnetised and is therefore able to prevent the formation of micro-crystals through stacking.

Dr. Bolakani from Bombay writes in his book *Secrets of Magnetotherapy* that many healers go to thermal spas to cure all kinds of diseases such as obesity, urinary disorders, rheumatic pains, gout and premature ageing. The water proceeds from sources that pass through magnetic fields.

To explain how valuable these waters are, we must remember Professor Yves Rocard's theory. The water's filtration induces electromagnetic potential (Quincke effect) and creates electric currents that circulate in the ground. Just like currents do, they form magnetic fields that locally modify the form of the ambient terrestrial magnetic field.

The sensitivity of detection is related to the extent of the field variation. This explains the powers of the dowsers, as the human body can become sensitive to these vibrations. When the spring water or underground rivers pass through regions where the ground contains iron, manganese and cobalt, they become magnetised and beneficial for living beings (plants, animals and humans).

In a clinic in Saint Petersburg, gallstones and kidney stones are dissolved through a magnetised water cure. Magnetised water acts on humans if it is absorbed during a long period of time (regular intake during two or three months).

The magnetic energy that is transferred through induction to a living substance that is capable of absorbing it acts on the whole organism. For those tissues containing colloidal solutions, magnetic fields have a positive influence on the biological processes.



**Rila**



# Magnetism

Throughout the centuries, man has always been fascinated and attracted by invisible magnetic fields. According to the legend, magnetism was discovered by a Greek shepherd named Magnes. One day, as he was grazing his herd, the iron point of his cane was drawn to a mass of rock. The legend says that the shepherd had difficulties to withdraw his cane. Fragments of this mass of rock stuck under his feet allowed him to walk longer distances, without becoming more tired as a result.

According to other reports, stones containing iron oxides with magnetic powers were discovered in “Magnesia” (Asia), hence the name “Magnet”. The ancient Egyptians must have already known about “**Magnet therapy**”. Chinese and Indian evidence dating from 2000 to 1000 years before Christ provides us with information about magnetism and its effects. Homer (850 before Christ), Plato (429-347 before Christ), and Aristotle (384-322 before Christ) wrote about magnetism. According to a legend, Cleopatra (69-30 before Christ) referred to a magnet on her forehead to retain her “legendary beauty”.



**“A therapist’s job consists in bringing man to a new birth”**

Philippus Theophrastus Aureolus Bombastus von Hohenheim, a.k.a. **Paracelsus**, was born in 1493 or 1494 in Einsiedeln (near Zurich), in central Switzerland. He was a doctor, alchemist and astrologer. He is at the origin of very modern thoughts, including homeopathy.

Paracelsus (1493-1541), Father of Holistic Medicine, conducted several studies on magnetic fields. Galileo (1564-1642) was surprised by the contents of the book named “*Magnetisms*” written by Dr. Gilbert William of Colchester (1544 /1603).

The main findings were established during the nineteenth century. Faraday (1791-1851) proved that matter is magnetic and that magnetic fields can attract or repel. Other researchers such as Ampère (1775-1836), Oersted (1771-1851), Arago (1786-1853) and Biot (1774-1862) also made some important discoveries in this field.

The first manuscripts relating to the “therapeutic effects of magnets on humans” were published in 1843 by Eydram. In 1879, the Bénédicté and Drozdov brothers were the first to prove that pain could be reduced through “**Magnet therapy**”.

This small retrospective shows the interest in soft medicine that was already present in the nineteenth century. The Magnetic Fountain is an extension and a refinement of the works performed by pioneers. It also incorporates some of the latest discoveries.

# *Water, life and the city*

**For many, “The Fountain of Youth” is a chimera. In the Middle Ages, it was common to search for an elixir that could provide eternal youth. “The Fountain of Youth” was the symbol by excellence of eternal youth and health. Now-a-days, the word “Fountain” is linked to an element: water.**

There is no attribute that specifically defines water. It can be defined as a liquid element that is transparent, has no calories, odour, colour nor taste. Human beings, animals and plants cannot live without water. Water is essential for life on Earth. We all need it, from elephants to microbes, and there exists no equivalent substitute. Each of the world’s five billion people needs to drink at least two and a half litres of water a day to be healthy, be it in liquid form or through food. We know its chemical composition. As a general rule, water is defined as hard because it contains many dissolved salts such as calcium, manganese, silicon and chlorine, amongst other elements. When heated, the salts divide to become micro-crystals that form calcium deposits in pipes and water containers.



If we closely look at a water molecule, we will find that it is in constant movement. To explain this, we will travel with a water molecule that is on the ocean’s surface. It evaporates under the sun’s heat, and gathers with other molecules at thousands of metres above the Earth’s surface, forming a water droplet. Pushed by the wind, its travels hundreds of kilometres until it falls on the ground in the form of rain. It flows down a hill until it reaches a source. An animal drinks it and a few hours later it will be back on the ground. A tree root will absorb it and it will evaporate through the leaves. Our water molecule will join others to form a cloud, and will fall back on the ground in the form of rain. Finally, it will join a river to be brought back to the sea. This cycle is constant and eternal, and it is thanks to this circuit that life on Earth can continue.

If we analyse the chain through which water passes, especially in industrialised countries, it becomes evident that the water we drink also travels from far before arriving at our table. However, we cannot say that our “water molecule travels freely”. On the contrary - it is imprisoned. This said, the water we drink is not in contact with the natural elements mentioned above. We can say that our water is in a certain way “deactivated”.



# Yves ROCARD, from nuclear to magnetism

(1903-1992)



Professor ROCARD is a great physicist, mathematician and rationalist dowser of the twentieth century. He is one of those very few researchers that can be described as being a scholar and an inspiring teacher at the same time. His influence was considerable, notably though his involvement in two major positions of high responsibility:

Director of the Physics Laboratory at the “Ecole Normale Supérieure” for 28 years (from 1945 to 1973), to where he attracted a whole generation of physicists before entrusting them with the responsibility of creating their own areas of research. The method consists in causing an initial spark, and then giving the decisive impulse to launch the real institutions. This is what gave birth to the French Schools of manifold specialties including theoretical physics, nuclear and elementary particles physics, astronomy, solid state physics, electronics, plasma physics, physics of the upper atmosphere...

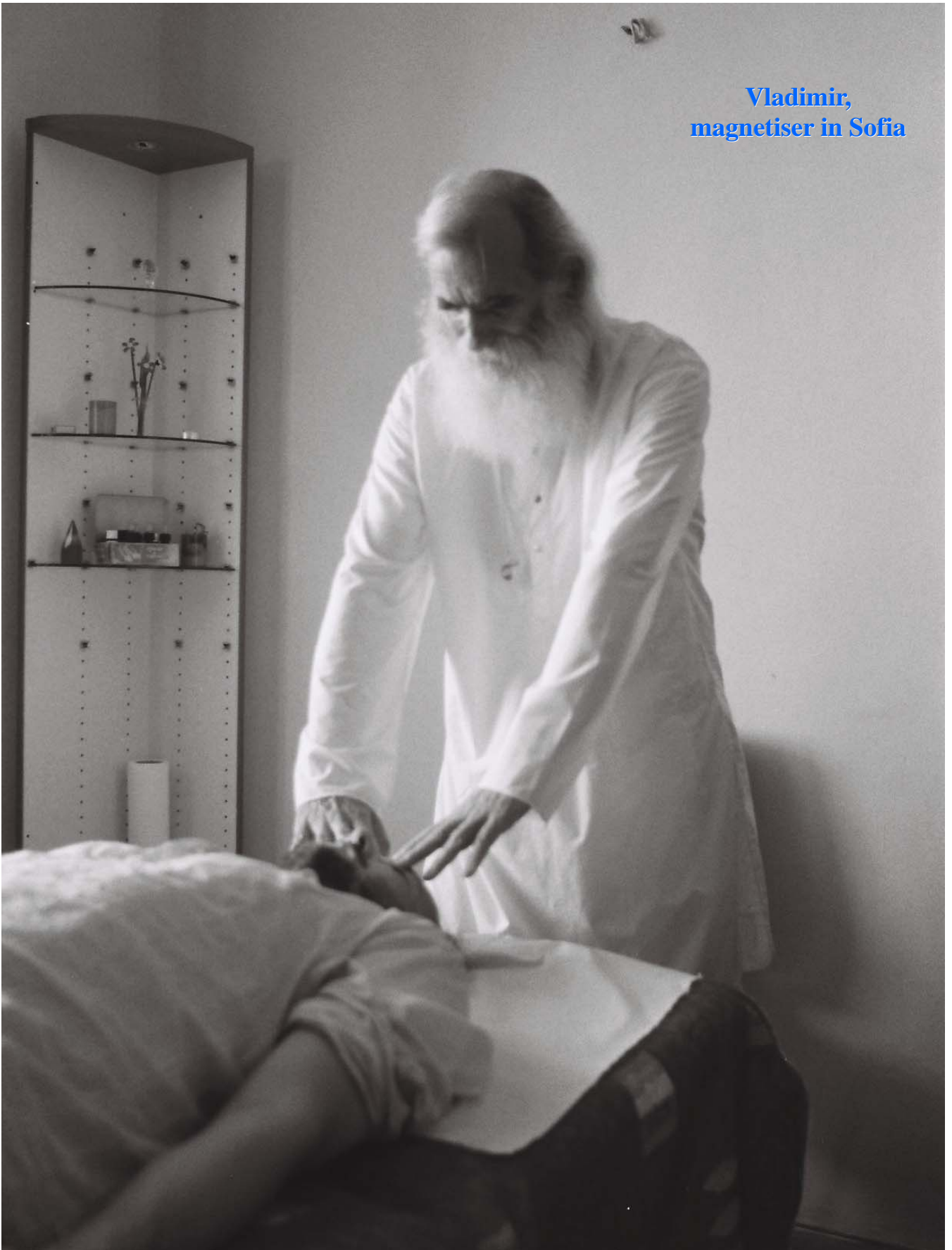
Member of the Atomic Energy Committee and Scientific Advisor for military programmes at the Atomic Energy Commission from 1947 (after the setting aside of Frederic JOLIOT - CURIE from the position of High Commissioner), he quickly becomes scientifically responsible for the programs that will lead France to mastering nuclear weapons. His impact on the structuring of military research is just as grand as that in civil research. Thanks to this new generation of physicists that he has created, we will be able to draw from the essential knowledge of the experts who will forge the tools for national defense for many decades.

His many works have led him to explore subjects as diverse as the wind stability of the Tancarville Bridge and later on, dowsing. Since 1957 he has worked to give a scientific explanation for the sensitivity of dowsers and published three books on the subject: *The Signal Seeker*, *The Dowzers*, and *Science and the Dowzers*, this last one from the Dunod Editions. (For more information, see page 60). It is important to consider that as one of the most brilliant scientists of his time, he accepts magnetism and what it involves.



Yves Rocard being decorated by the General de Gaulle. Among his many titles, Yves Rocard was Commander of the Legion of Honour.

Vladimir,  
magnetiser in Sofia



“Thirty years ago, when I became interested in water diviners, who are in fact dowisers and in magnetisers, my scientific colleagues thought that senescence was invading me, but you will find that I am still rational and sane and I answer your questions. Magnetisers and dowisers exist because they obtain indisputable results. They will exist as long as they continue obtaining such results.” Yves ROCARD (See interview on page 64)





# Marcel VIOLET

(1886-1973)

In 1961, Marcel VIOLET, engineer of arts and professions and recognised inventor and scientist of his time, gave the only public lecture of his life during which he revealed his discovery of vitalised water.

This revelation was later published as a book: “The Secret of the Patriarchs: Essay on the Nature of Biological Energy, Use Perspective in the Field of Self-Defense and as a Factor of Rejuvenation”. In regards to his work, and after successful experiments, Rene Bartholomew exclaimed:

“We may find ourselves in the presence of the greatest discovery of the century”

Vitalised water was discovered, tested and perfected in the laboratories of the army, as Marcel VIOLET worked in the Armament's General Management for many years, together with the greatest scientists of the time. They thus discovered that properly treated water was capable of conferring new and unknown forces to living organisms. It was observed that the spontaneous cure of serious illness is possible but rare, and that vitalised water can stimulate this curious phenomenon. Experiments were conducted and undoubtedly showed that this water increased crop yields and growth of livestock. While he was sentenced by medicine, Marcel VIOLET decided to test his discovery on himself without moderation. It is to this audacity that he attributed his survival.

The vitalised water was tested on an entire hospital: doctors, patients, women in childbirth and maintenance personnel with such favorable results that it was intended for general use. A positive opinion was issued by the National Academy of Medicine in 1958:

“Experiments on animals or humans, especially convalescents, were made by various doctors either at their clients' homes or in hospitals. They showed that a dose of 25 cm<sup>3</sup> three times a day caused a decrease in fatigue, improving the overall condition. After reviewing the record, our committee admitted that through this method, elements that have a positive effect on cellular life can be introduced and they recognised the value of such treated water.”

Medicine lost interest in vitalised water because in view of its composition, water is just water and not a drug.



Marcel VIOLET's conference is available on the site : [www.fontainemagnetique.fr](http://www.fontainemagnetique.fr)

“In search of a definition of life itself, a great biologist, Fred VLES, professor of biological physics at the University of Strasbourg, gives biology the following definition: ‘Biology is for the most part the science of water.’ Indeed, it appears that water is always necessary for life. Wherever there is life there is water, and where there is no water, there is no life.” According to Marcel VIOLET, cosmic rays are the ones that give water the properties that enable it to organise life.

He discovered that beeswax, properly prepared, is a selective filter of cosmic radiation, all of which is explained in detail in the conference. The [Magnetic Fountain](#) integrates this discovery, while incorporating the resonant frequency of the Cosmic C (page 68), which constitutes an additional vital information. We owe the magnetic resonance characteristics found in the Magnetic Fountain to the works of the great and underrated Nikola TESLA.

The [Magnetic Fountain](#) also contains a magnetic vortex, a sort of swirling magnetic field, which rotates the water molecules. All serious chemists know that the water molecule is electrically asymmetrical, so it aligns with magnetic fields. The [Magnetic Fountain's](#) vortex is made based on the work of SCHAUBERGER. A short film on the website [www.fontainemagnetique.fr](http://www.fontainemagnetique.fr) helps us understand the presence and effect of the vortex due to its spinning top. Another film which shows and explains the water vortex is also available for free.

The [Magnetic Fountain](#) reproduces in miniature and in the comfort of your home, the processes that nature uses to vitalise water and transfer information to it.







# Viktor SCHAUBERGER

(1885-1958)

This Austrian forest ranger, naturalist, philosopher and inventor, has published essays on his inventions and theories. He said that water is an element that naturally energises itself during its course along a stream as it moves through fluidic vortices more commonly known as whirlpools. He has continued to develop practical applications to energise water for drinking and agricultural use.

He devoted his life to demonstrate how the desecration of our environment is due to our ignorance of how nature operates in terms of energy. He was convinced that humanity must humbly study what nature teaches us instead of trying to fix it. The [Magnetic Fountain](#) owes much to Viktor SCHAUBERGER, both for his work on vortices and for his view on a fair relation between researchers and nature.

Schauberger warned us against the current ecological disasters. His ideas and discoveries are spreading around the world. He conceived an ecology in harmony with nature well before the modern approach. As a great observer of nature's phenomena, he discovered the many properties of water in which he saw not only the support of all life, but also that of the whole terrestrial consciousness. His thoughts and discoveries led him to direct applications in forestry, biodynamic agriculture and hydrology: rivers, dams, water dynamisation, and the organisation of forest areas; securing the quality of wood and the natural irrigation of soil. The physical laws that he brought to light are important, contrasting with our current techniques for capturing energy - our motors and other devices are, by definition, always destructors of energy.

Through his careful observations of the living world, he concluded that life derives from a type of energy which the present human achievements ignore; nature seems to be capable of producing movement without consuming energy in the sense of thermodynamics. Why and how? That is the goal of this book; to give us a glimpse at what Viktor Schauberger discovered and achieved, and especially to revive the research...

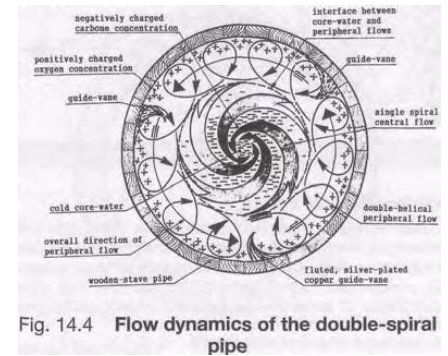
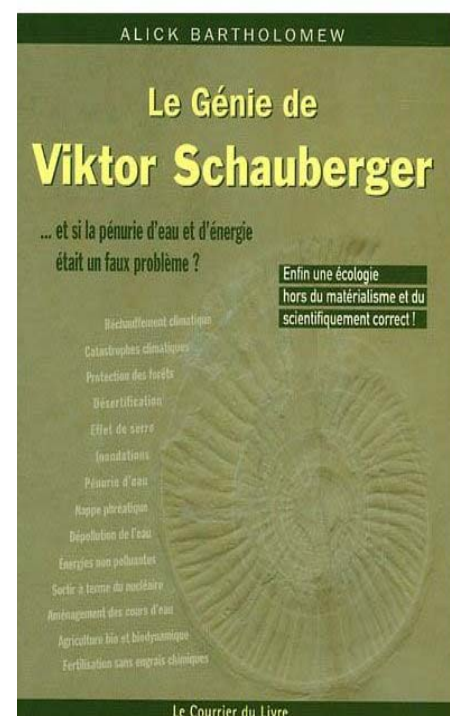


Fig. 14.4 Flow dynamics of the double-spiral pipe





# Nikola TESLA

(1856-1943)

“The theory of relativity is like a beggar dressed in purple; ignorant people consider him a king.”

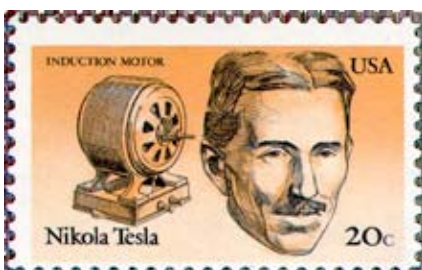
Nikola TESLA created most of the technology we know today. Saying he is the creator of our times is no exaggeration. Of Croatian descent, he emigrated to the United States where he made many discoveries and revolutionised the science of his time. He is the inventor of the electric motor, the radar and the radio transmission. Contrary to EDISON's opinions, he created the alternating current and applied it as a means to transport electricity from production sites to our homes.

Virtually unknown today, he was considered a century ago as the most prolific inventor in the world. He filed patents for over 700 inventions, not to mention all the work that is yet unknown because of the secrecy covering military applications. He said he had a vision of a universal energy field that could one day be exploited: “space is full of energy, it's just a matter of time, and Man will soon start powering machines using nature's movements.”

He had many intellectual qualities such as an absolute photographic memory, an inventive genius and a gift to visualise in such a way that he never needed neither model nor drawing, nor experience: “everything I invent works as I imagined, the experiment proceeds as planned.”

The Magnetic Fountain transposes SCHAUBERGER's works on the vortex into the magnetic universe that TESLA opened for our understanding. The principle of resonance was discovered by TESLA. This phenomenon explains the universal DO (see p.69) and the effect of the ring. Resonance works for sound, but also for magnetic structures and perhaps even for thoughts...

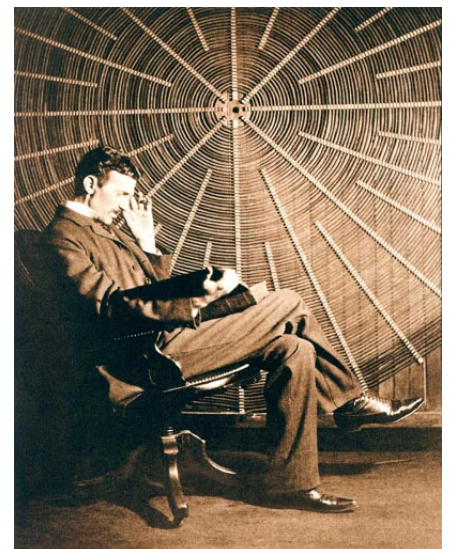
$$W = d(Z^*Q^2/2)/dt$$



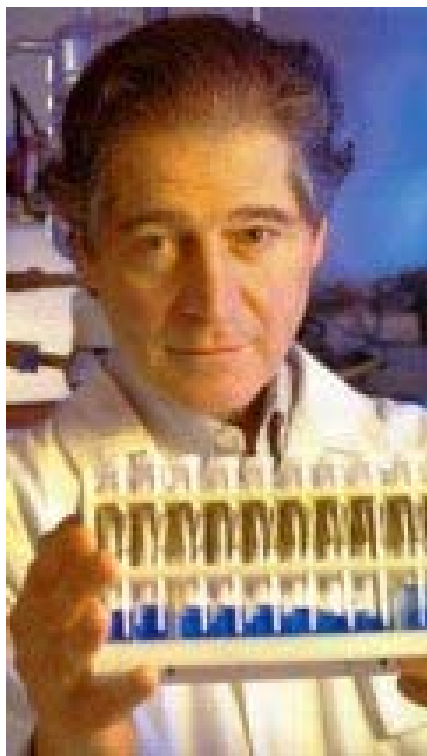
A Tesla (T) is a magnetic induction unit in the SI system and it is worth a weber per square metre.

$$1 \text{ T} = 1 \text{ Wb/m}^2 \text{ or } 10^4 \text{ G}$$

(gauss in the cgs system)







# Jacques BENVENISTE

(1935-2004)

**Jacques Benveniste, Dr. in Medicine, intern in Paris hospitals and Research Director at the INSERM, earned a global reputation through his work on allergy and inflammation mechanisms. He was also Jean-Pierre Chevenement's adviser who at the time was Minister of Research from 1981 to 1983.**

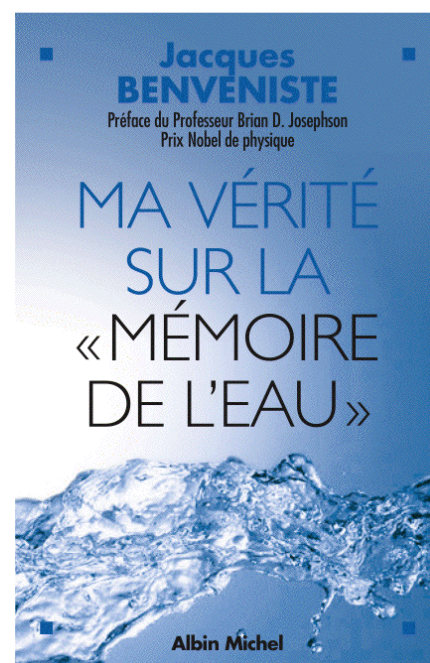
In 1984, while experimenting on high dilutions, he discovered a new phenomenon which he called “the memory of water”, for it to be understood. He observed biological responses triggered by aqueous solutions which were so diluted that, theoretically, no molecule of the initial active substance remained. Water acts as if it had memorised the molecules with which it was in contact before dilution.

This discovery sparked an outcry. Some saw it as an overall questioning of biology, and especially of the discontinuous structure of matter and the alleged “lock and key” action system. Jacques BENVENISTE was mainly criticised because he provided a theoretical basis for homeopathy. Despite the violent polemics, he continued on his works.

The memory of water was only a first step; it was important to find out how water molecules can store information. Thus he ended up discovering the fact that molecules communicate with each other not by contact, but through an electromagnetic field on a particular frequency.

In 1991, using an electromagnetic detector and a low-frequency amplifier, he transferred a molecular signal. A further step was taken in 1995, when he managed to save the famous molecular signal on a simple multimedia computer. In 1996, the recorded signal was transmitted over several thousands of kilometers between Clamart, near Paris, and Chicago. The received electromagnetic signal was transmitted through water, which played the role of a mediator, and caused the same biological responses as if the emitting molecule were physically present.

Thousands of experiments have been confirmed and successfully completed in several laboratories around the world. Jacques BENVENISTE demonstrated water's ability to produce effects by transmitting electromagnetic information.





Luc MONTAGNIER, Nobel Prize in Physiology and Medicine, is the co-discoverer of the AIDS virus. After working on the electromagnetic signals that are detectable in cultured cells, he said that AIDS can be cured with a balanced diet, rich in antioxidants, and especially with high quality water. (Also see [www.tinevandermaas.com](http://www.tinevandermaas.com))

During a conference in 2007, he fully supported BENVENISTE's findings. He also defended him on France Inter. Below is an extract of this remarkable interview which is also available for you to listen to in full on [www.fontainemagnetique.fr](http://www.fontainemagnetique.fr)

“For me, Jaques BENVENISTE is a great researcher and the way he was treated is scandalous. I think it's a matter as important as the Galileo affair. It's a revolutionary idea that water is extraordinary. DNA is surrounded by water and water keeps the DNA's information. Organised water emits electromagnetic waves. This is supported by physicists who have been working on the water's structure for a long time. I am not alone but rather isolated among biologists who suppose contact between molecules, when they can actually interact at a distance. He shall have to be rehabilitated, as Jacques BENVENISTE was right. He was ahead of his time, and scientists find paradigm shifts hard to swallow. The universe is not only material, we must consider waves as well.”

Electromagnetic waves, just as any vibration, produce a shape in the environment in which they propagate. Information creates a shape, explains Jacqueline BOUSQUET, PhD, honorary researcher at the CNRS. Her lectures are available on the web ([www.arsitra.org](http://www.arsitra.org)). The information is carried through into a three dimensional shape which water, as a liquid crystal, is able to keep. That is why, as Luc MONTAGNIER so aptly describes, “structured water emits electromagnetic waves”. The shape is gradually dispersed by entropy and stores the strength that gave it birth, just like a log gives back the sun's rays that it has incorporated into its structure, when you burn it in a fireplace.

The force that allows water to maintain its structure is electromagnetic or kinetic, depending on whether we consider the situation in terms of particles or waves. Precisely such a force is given to water through the [Magnetic Fountain](#)'s vortex. Each water molecule is rotated. As to the structure given to water by the [Magnetic Fountain](#), Pier RUBESA's analyses are explicit. By turning the ring, we create a resonance with its own energy. For more information, refer to the annex “Attention and intention” on page 50.

It makes sense to say that water is a mobile liquid crystal, receiver of information generating complex and labile three-dimensional geometric structures, right? Imagine, however, that there was a time when few people knew this. Fortunately, the Japanese Masaru EMOTO developed a magnificent method to highlight the hidden structure at the heart of the translucent purity of water. When beauty starts supporting reason, we approach the truth...

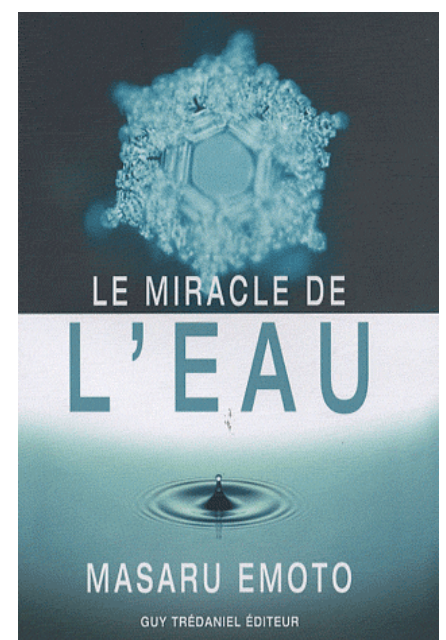


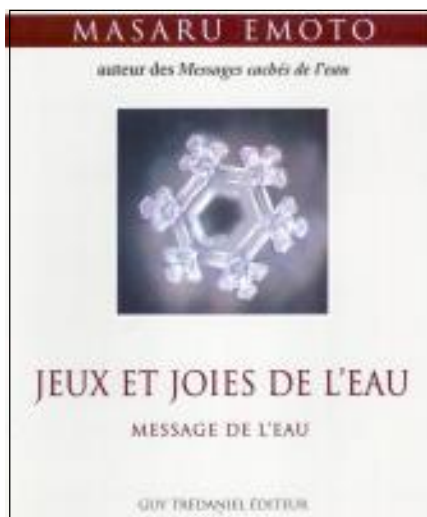


**Emoto MASARU invented an ingenious device to highlight the water's structure in a remarkably artistic way. After months of work he discovered how to freeze a drop of water at the adequate temperature and lighting to photograph the crystal it forms through a microscope. There exists a wide variety of crystals, depending on the location from which the water is extracted. Emoto published several books and made films about the many applications of his discovery.**

As an example, Emoto MASARU showed that water reacts to music. By exposing a bottle of water to music, he showed that it produces a characteristic crystal. Classical music creates beautiful crystals. In contrast, some modern music creates much more irregular crystals or sometimes a cluster of lines without structure. He who has ears...can listen.

Emoto MASARU's work follows the concept of "Hado", which means wave vibration or vibration. This word has been around for centuries in Japan, but in recent decades, it is used in fields as diverse as philosophy, science or quantum physics. Dr. MASARU studied the remarkable effects of Hado on water crystals.





Here is one of Dr. MASARU's most important books on the symbolism of water in all areas of daily life. Many readers around the world were shocked by his discovery of the deep symbolism and secret virtues of water.

Thoughts of love or hatred have a different impact on the geometry of a water crystal, transmitting flattering colors or not, harmonious or unsightly shapes, according to the expressed sentiment.

This opens up infinite possibilities for interpretation: including these. MASARU invites us to learn first-hand the mysteries of the intangible on topics that concern us all.



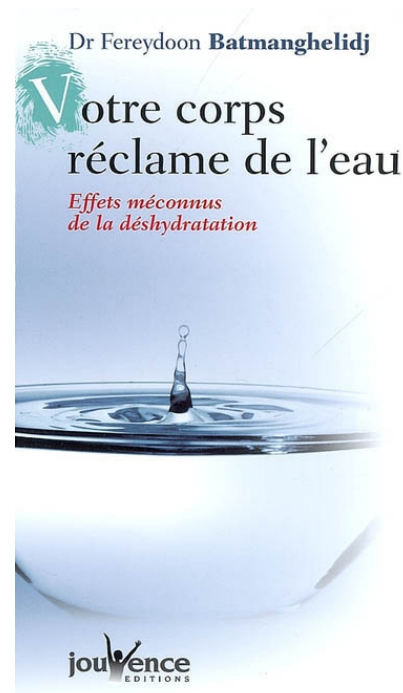
## Fereydoon BATMANGHELIDJ

(1931-2004)

Born in Iran, Dr. Fereydoon Batmanghelidj studied medicine at the University of London. As a doctor, he wrote numerous books on the problem of dehydration in the human body. These books sold thousands of copies worldwide. His best known book is probably: *Your Body's Many Cries for Water*.

In the United States, he created the "Simplified Medicine Foundation", whose mission is to deepen and spread his revolutionary discovery; water deficiency is the cause of many diseases. In short: we must drink two large glasses of water in the morning, approximately 500 ml. As a handy "coincidence", this is precisely the capacity of the blue bottle. It is then advisable to drink a large glass (250 ml) of water every hour. Half an hour before meals, it is recommendable to drink a large glass of water. Two and a half hours after the meal, a large glass, and then every hour a large glass, etc...

These recommendations are intended to help cure the seriously ill and reduce some of the dehydration symptoms that are wrongly considered as specific diseases: arthritis, allergies etc. According to BATMANGHELIDJ, we are all dehydrated. If you drink dead water, you will still feel thirsty afterwards. Drink water that is alive!



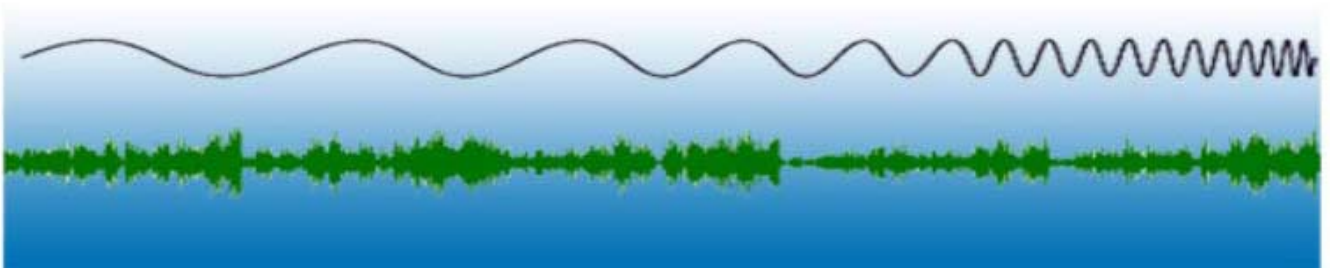


# Pier

# RUBESA



Pier RUBESA is an independent researcher who specialises in vibration, electric and acoustic fields that are measurable around all living beings and water. He created the Sonoscope, a device that acts as a sound microscope to highlight, after computer processing, the bio-electric fields of the living. The Sonoscope is used to explore water's properties further than its chemical composition alone, discovering a spectrum of electromagnetic frequencies whose distribution is indicative of its biological properties. Pier RUBESA works with many universities in several countries on topics ranging from agronomy to medical care. To learn more about the highly innovative works of this leading researcher, you can view his interview video at [www.fountainmagnetique.fr](http://www.fountainmagnetique.fr)



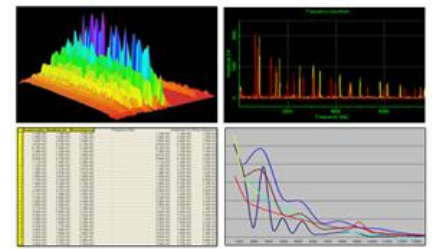
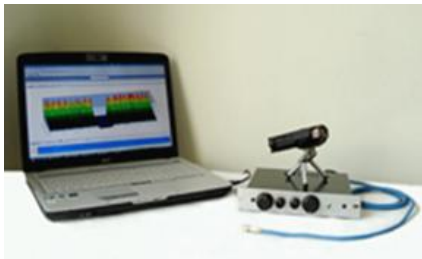
*Signal Intelligence "Waves of the Future"™*

“I study the electric fields emitted by living beings; all human beings, plants, animals, water, but also cells, organs... These electric fields have been known for over a century, but were regarded by scientists as a kind of unwanted noise.

This phenomenon is a subtle field. It consists in an electric field at audio frequency, in the low frequencies, that can be heard electrically without the acoustics. It is always present around us: the silent music of an interaction between human beings, as well as with animals, plants...

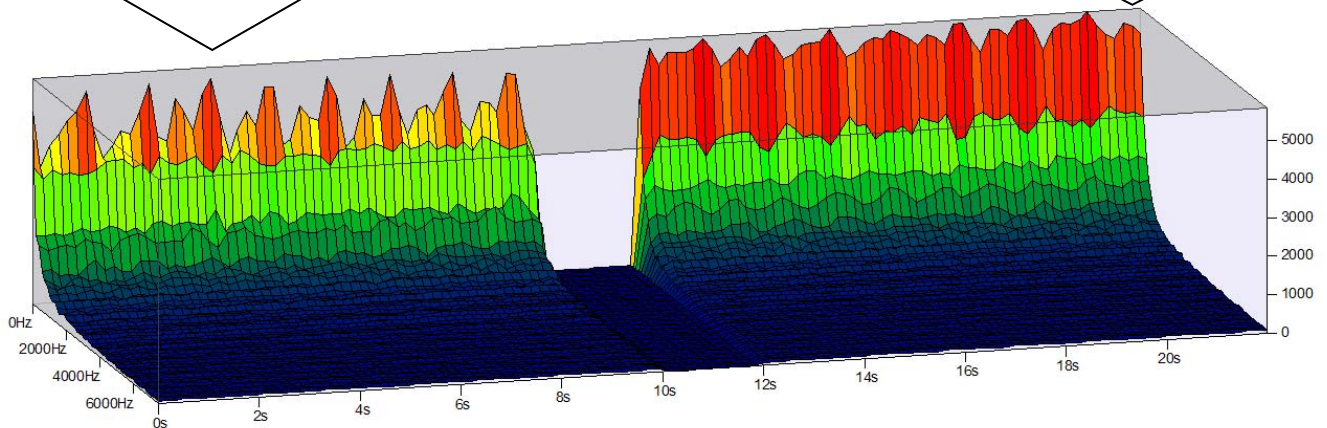
This phenomenon is dynamic. It constantly varies with our breathing, heartbeat, digestion, etc., so that the electric field emitted is never the same, although each being has specific characteristics.” Pier RUBESA.

Extract from an interview given to the Nexus magazine. It can be consulted in Annex 5.



Spectrum of a water sample **before** treatment with the *Magnetic Fountain*

Spectrum of this same water sample **after** treatment with the *Magnetic Fountain*



The Sonoscope is an electronic device which measures the vital electric fields of living beings, ranging from plants, to humans or a drop of water. This diagram shows the measurements made by Pier RUBESA before and after treating water with the [Magnetic Fountain](#). The left side shows the water before treatment and the right side shows the results after treatment with a single turn of the magnetic ring. A short video showing how this measurement takes place, together with explanations and comments from Pier RUBESA is available on the [Magnetic Fountain](#) website. The detailed analysis report is also freely available on the [Magnetic Fountain](#) website. At first glance, there is a profound change in the water's properties after being magnetised with the [Magnetic Fountain](#). The analysis report is fairly technical, so here is a summary.



### **“Observation:**

A water sample was tested with a Bioscope, before and after treatment with the [Magnetic Fountain](#). The water was placed in a container and treated by turning the floating magnetic ring once.

### **Test Technique:**

The Bioscope is a device that measures the subtle electrical field surrounding biological material. The field is induced by the application of a low frequency audio electrical wave via an electrode. The interaction between the applied electrical wave and the one that is created causes a disruption in the signal which is then recorded and analysed. In the reports, the graphs illustrate the information components that are contained in the signals (by frequency ranges between 100 Hz and 2000 Hz), the spectral amplitude and the phase's information. The signal's dynamic response is shown in the graphs of the spectrum on surface. The sample is monitored through reaction periods of five seconds. (...)

### **Frequency Characterisation:**

The spectral content shows a change in the frequency components of the water's spectrum in the range from 100 Hz to 2100 Hz after treatment with the Magnetic Fountain. The spectral amplitude shows an average increase of about 450 electron volts, indicating that the treatment stimulated the electrical energy contained in the water.



### **Dynamic Characteristics:**

When processing the data with a computer, a significant change in the dynamic characteristics of the water's electrical field can be observed; before and after treatment with the [Magnetic Fountain](#), particularly in the modulation of the low frequency peaks. The dynamic response of low frequencies is essential in biological systems. It is one of the basic information processes in living organisms.

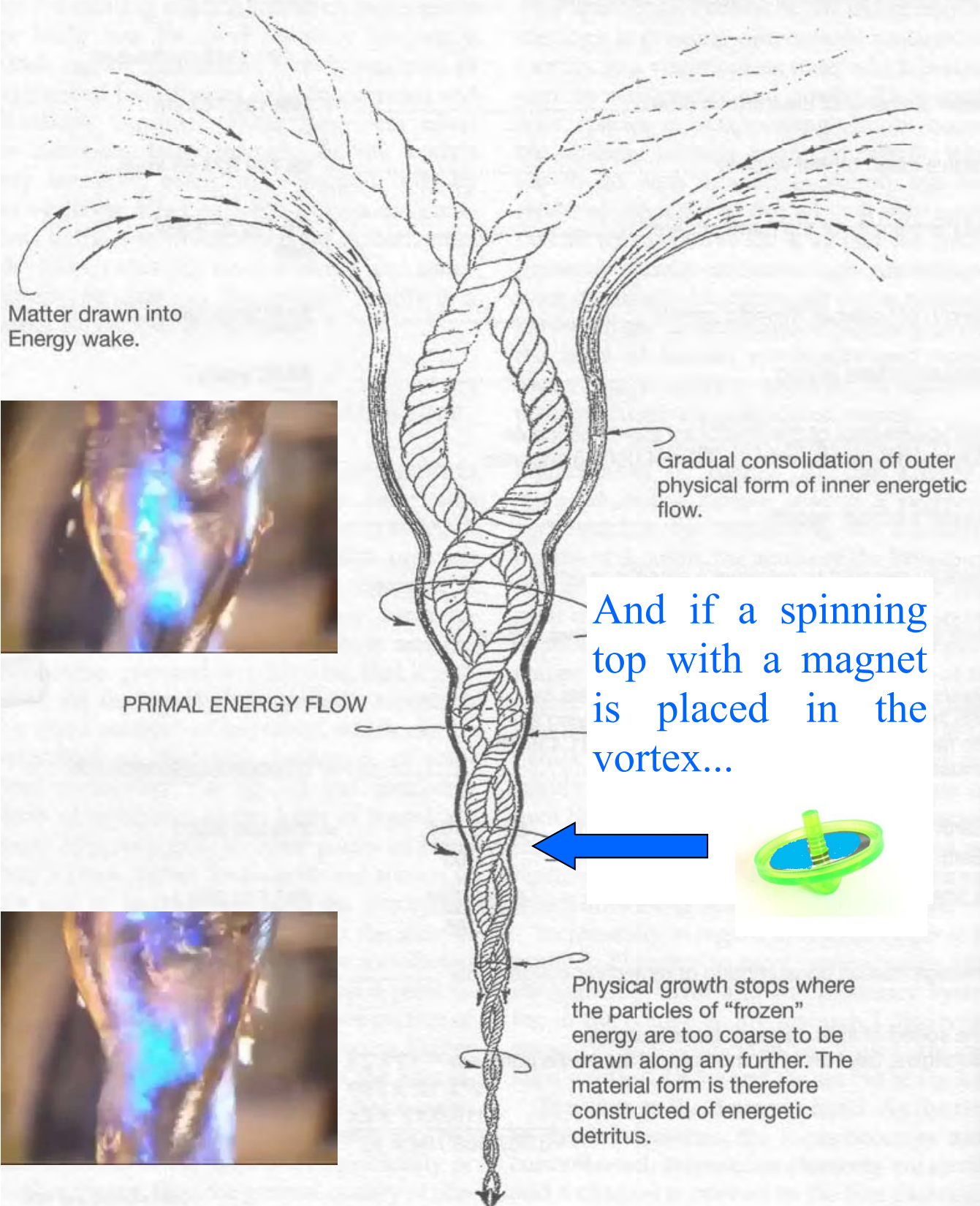
### **Conclusions:**

Test results indicate that treating water with the [Magnetic Fountain](#) significantly alters its electrical charge and dynamic properties, specifically in the low frequency range. This has been recognised as an important factor for supporting the information processes in living tissues.

**ENERGY IS PRIMARY – THE CAUSE.**

**FORM IS SECONDARY – THE EFFECT.**

Energy creates the form in which it wishes to move.  
The form is therefore the mirror of the energy flow.



**Fig. 3.5 Energy and Form**





# Thierry Keller



Thierry Keller was born in a family of musicians. He was rocked in musical harmony from an early age. While listening to Mozart, Beethoven and [Chopin](#) at a young age, he noticed that certain works just flow. This perception of harmony became his base, considering the senses as openings towards harmony that should be opened simultaneously to receive converging and invigorating information from the world. Beyond improving the senses through research on the syntonic harmonic perceptions, and beyond conceptual and mathematical refinement, it is the inner attention to intuition that best characterises his creative approach.





# France Rila

Thierry actively supports the France-Rila NGO, which aims to preserve the Rila National Park in Bulgaria and especially the region of the seven lakes shown in the photo below. The Rila National Park covers an area of 88,000 hectares and is home to 140 lakes. It is a place of exceptional purity.



When Masaru EMOTO visited Rila, the president of Bulgaria lent his helicopter for the occasion. “Rila” comes from an ancient word of the Thracian civilisation and means “water abundance”.

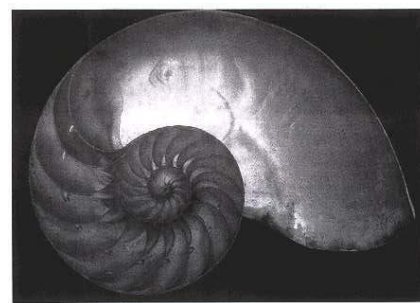
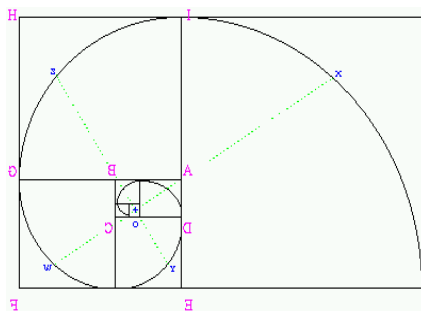
This place is known worldwide and many artists come here to draw their inspiration, including the famous orchestra conductor Alain BESSON who heads the Quebec Universal Choir.

[www.alainbesson.org](http://www.alainbesson.org)

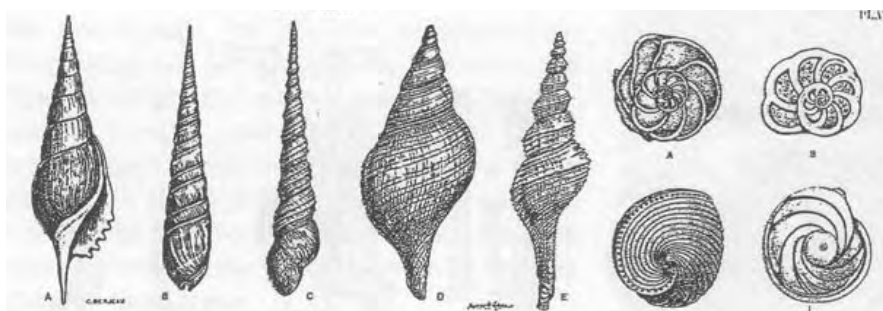




Musical harmony structures Thierry's works and creations. At a subjective level, harmony is both a quality marker of perceptions and the gateway to a conceptual, mathematical universe, concealing the natural equations of order and beauty. As soon as we submerge our thoughts into the mysterious structure of harmony, we are in good company: the golden ratio, the Fibonacci sequence, the golden spiral... The path from algebra to geometry is that which leads thought to imagination, that is to say, from the concept to the plan, and then to the implementation.



The golden ratio, harmony's mathematical key, is used to draw the golden spiral which is the model for many of nature's creations. Similarly, vortices that vitalise water, whether liquid or magnetic, follow a rigorous structure.



When an idea is embodied, it progressively becomes a set of forms and forces. For this reason, some elements of the [Magnetic Fountain](#) are tailored according to their energetic and physical vibrational frequency. This is also why there is a harmonic resonance between the [Magnetic Fountain](#)'s ring and the universal Do: both are tuned to a resonant note of living water. According to many authors on which Thierry bases his works, harmony is the universal key that embraces the continuity of the visible and invisible phenomena.



Mountain lakes capture the vital waves of the cosmos. They are natural accumulators and transmit energy and information flows coming from space to the water. This is now demonstrated, measurable and promising for the future of humanity. We just need to become aware of this and act accordingly.



## Rila



However, as stated by Eliphas Levi, it is not about a visible world and another invisible world. Instead, there exist different levels of perfection within the organs of perception. Thought comprises a perceptual component: intuition.



The [Magnetic Fountain](#) transposes SCHAUBERGER's works on vortices into the magnetic universe that TESLA opened to our understanding. TESLA discovered the principle of resonance. This phenomenon explains how the universal Do works, and the effect of the ring. Resonance works for sound, but also for magnetic structures and even for thoughts. Thinking correctly brings us into resonance with the forces of nature. Thinking is reasoning and resonating. If nature is well made, and there is reason to believe this, a thought connected to nature will be harmonious,

harmonic. It is in fact important to filter what enters through our senses: harmonious perceptions connect us to the “transformational power of beauty”, to use Helene GRIMAUD's sublime expression, who also claims: “Beauty is not only what brings you back to what you are, but to how you can be bettered”.



One of the aspects of quantum physics concerns working on energy levels and the structuring of matter, interacting with certain levels of human consciousness either by resonance, harmonic, or polarity, etc. It is for this reason that experiments using the most powerful and expensive research equipment may give misleading results. In this manner, our attention and our intentions act first of all on the water in our body, and then on our biology. In our body and in nature, water acts as a mediator of physical and informational cohesion. Magnetic fields play a very similar role throughout nature, but in another aspect...that of the invisible. What happens between water and magnetic fields allows us to understand many phenomena.



During his studies, Thierry found that extensive scientific studies generally lead thought and creativity into blind alleys because of the excessive specialisation that detracts the research from an overall perception: *“Visioning things separately significantly detracts us from the truth, for we must see the*

*picture as a whole. A hand without the arm, the man behind, and the brain... it serves no purpose. We have a conscience, so we must use it!”*.



Thierry thus used intuition and his connection to nature as his early work tools. His method, which gave birth to the [Magnetic Fountain](#), is the intuitive creative process which consists in connecting with the cosmos (from the Greek κόσμος: *kosmos* meaning “orderly world”), harmony being the indicator of a relevant perception in line with the organising forces of life. The connection to the cosmos, to nature, to the universe is the simple natural relationship of man with his environment and it is obtained by cultivating receptivity and availability. In this condition, intuition captures or formulates new concepts.

It is while observing nature during his solitary retreats in the mountains that Thierry got inspired for extensive research which led him to reread old

treatises on alchemy and compile leading research on fluid dynamics, electromagnetism, theory of information... to finally create the [Magnetic Fountain](#) which represents the culmination of many years of research.

Thierry always carries a notebook to jot down his ideas as they arise. This practical habit also allows him to easily notice that creativity comes in cycles of 28 days. Every woman knows that human creation is mysteriously influenced by the moon. For the alchemists, this is a basic element in the creation of their works. For our civilisation, worldwide, it is an evident fact which would be beneficial if rediscovered.

The cycle of intuitive creation thus consists in being receptive, jotting down ideas as they come and then moving on to their implementation. There are times to sow and times to harvest, just like in man’s inner life. It is important to remain receptive to what is happening within oneself. When an idea is created, a new intuition arises with an evident qualitative progression. Implementing an idea makes room for receiving another one. Everyone can benefit from this simple and effective method.

Thierry recommends students, especially science students, not to deny their intuition which is and will remain their most noble and most powerful work tool. If inanimate matter is governed by fixed laws, it is undeniable that consciousness and freedom increase along with the increasing complexity of living organisms. Human consciousness uses thought as a tool that operates optimally when it serves life, which is creative by nature. Methodological rigor is a work quality that is intended for operating matter in the best manner. Inert matter and living tissue do not have the same logic. There is logic, which is close to geometry and can successfully be applied to solids, liquids and gases. To think the plasma we already need something else. After logic, there are the “bio logics” because the living has its own organisation rules. Then, there are the “psycho logics” which are at the most complex level of information in living organisms. Beyond that... let's say it is intuition that assures contact and guides us towards the right tuning of these three levels.

Thought at its maximum speed is receptive through intuition and when it re-descends to the dense world, it materialises, condenses, and creates through rigor and precision. Thought therefore needs to be fluid to create, and then densify for implementation. This delicate format consists in accepting the idea that one can be creative while remaining in the dense area of thought. Making an error in this aspect leads to the loss of creativity which is in fact the essence of life.

Indian yogic science represents 5,000 years of uninterrupted research in physiology and psychology. This deep civilisation has clearly identified these different layers of thought. It is thus no coincidence that TESLA diligently read the Vedas and Upanishads... from where do you think he had his vision of a universal energy field? Similarly, REICH's works on orgone are just the base of the Indian science of pranayama: the science of vital energy and breath.

He who deepens his thoughts into matter will progressively see less and less far. It is good to focus on detail but above all, it is important to know how to keep a general vision and it is only through doing this back and forth that a knowledge which truly corresponds to the laws of the universe can gradually be accumulated. Everything that is above is just like what is below... and the point is to unite them with a double vortex for example, to create something unique from it.



## Salon Iris

Lyon 2011

The Magnetic Fountain and BIO MUSIC 6 in 1 shared a stand at the Iris Showroom in Lyon, France. Thierry KELLER and Jean Louis FAR-GIER also hosted two conferences on the following subject:

**LIFE'S FUNDAMENTAL BALANCE**

**AND WATER'S ENERGY**

**AIMING TO SERVE LIFE"**





Intuition is the contact area towards everything that we still have to discover and invent. Thierry says that *“when using your abilities for the good of others, it’s true; nature rewards you by sending you vitamins”*. To receive these cosmic vitamins, it is important to cultivate your connection with nature and to remain available and open. A real problem of our times is that many of us are continuously busy just trying to meet our needs. There remains little time to really live, to be connected and responsive. This is however precisely the balance, the well-being and the joy that we all seek. It may be for this reason that Thierry is so fond of Christian Tal Chaleur’s phrase: *“the solution?... is to replace problems for real life!”*.



By reading this document, you will probably have realised that “modern” water (chlorinated, polluted by drugs, pesticides, morbid electrical signals etc.) harms human life. Typically, this is a problem that can be overcome through knowledge and proper equipment. Not so long ago, every village had pure water fountains from which our ancestors drank life and health, quite simply. An individual sometimes makes mistakes and it is wise to correct them. The same applies for a civilisation. We must collectively recover the benefits of pure water. Each individual action towards this direction is a step forward. Fortunately, common sense is easily shared.

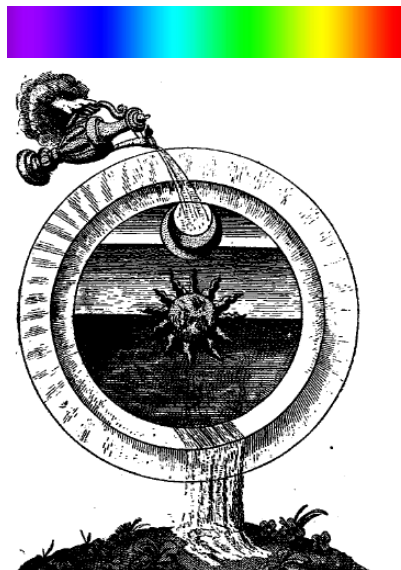
There are enough real problems to solve in life, without wasting our time and our energy on artificial problems, namely the thinking methods imposed on most scientific training, polluted water and food ...which is, let’s say, “perfectible”. Living, being creative and using our intuition for our welfare and that of others requires a little cleaning in our living environment.

For this reason and by basing himself on the technologies developed for the [Magnetic Fountain](#) together with the help of the tireless Robert BLEGER, scientific dowser, Thierry created and tested several vital wave condensers. These gems are used in magneto-culture and for the protection and geomagnetic vitalisation of a place.

Geomagnetic protection improves a place's vital quality (single houses, camping sites, hotels...) when the condensers are wisely placed.

Finally it is to nature, to the genius of Marcel VIOLET and to TESLA's, ROCARD's and SCHAUBERGER's works that we owe the **Magnetic Fountain**, geomagnetic protection and magneto-culture. It is thanks to BENVENISTE, EMOTO and RUBESA that we can understand and highlight the action of the **Magnetic Fountain**.

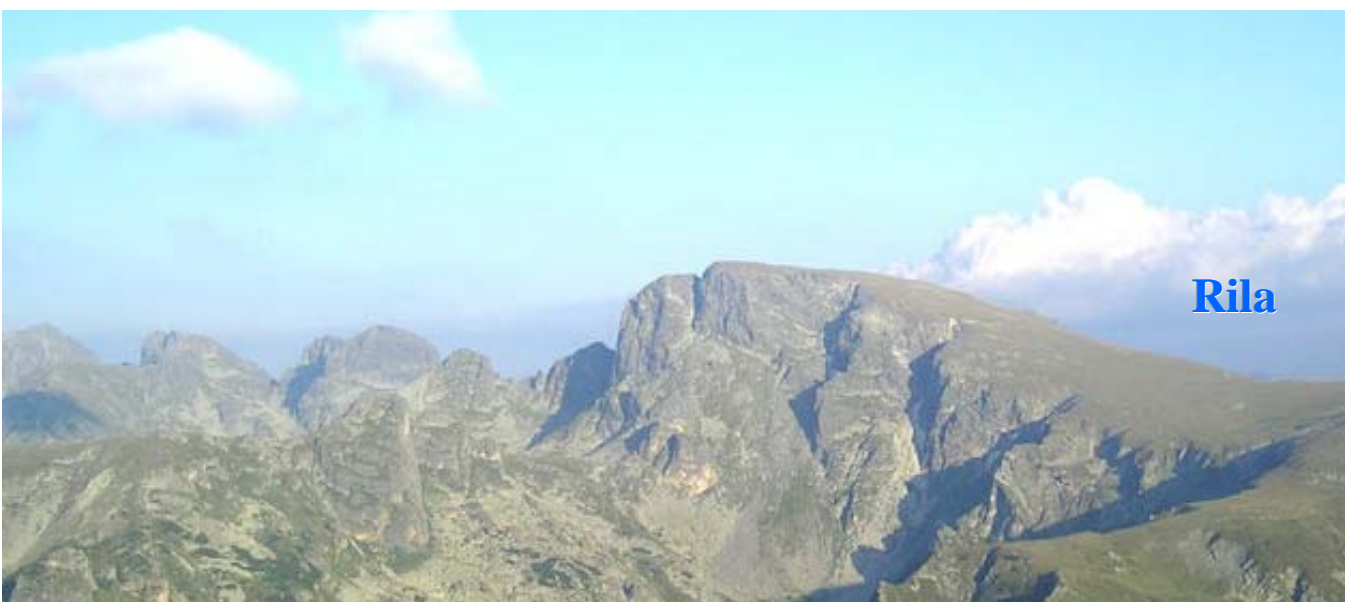
Thierry KELLER's dearest wish is for everyone to live better. With this in mind, he created the **Magnetic Fountain** and its derivatives.



**Symbol of Alchemy**

Thierry and his friend Robert BLEGER, scientific dowser, while installing geomagnetic protection at the headquarters of France-Rila. The farm was at 8500 bovis before the installation. By cutting two geopathogenic waves, the vibratory rate rose to 13 000 bovis. A condenser was placed in the weakest area of the Hartmann network, which led to 30 000 bovis. By placing 6 condensers around it with precision, so as to create a vortex, the vibrational frequency increased to 52 000 bovis. The atmosphere of the area was changed dramatically.

If you wish, you may contact Thierry or France-Rila to come and drink apple juice at 52 000 bovis.







# Using the Magnetic Fountain

Using the Magnetic Fountain is simple, a joy, a wonder and a fabulous terrain for discovery. Vitalised water acts on the body by simply allowing it to function at its best and to capture the information it needs to advance in its evolutionary path. Water that is charged with cosmic radiation is consciousness's natural medium. Our body naturally functions well when we give it water that has a healthy composition, adequate information and an organised structure. If one refers to the works of Louis Claude Vincent, it is preferable to use water with low mineralisation. Water from Mount Roucous is an excellent choice. According to Jacqueline BOUSQUET, and we share her analysis: *"There exists no drinking water. Tap water contains thousands of molecules from the pharmaceutical industry. As we only find what we seek, we claim as drinking water a water that should be reimbursed by the social security; it contains that many drugs. We must drink water that has been filtered by reverse osmosis"*. (Extract from Jacqueline Bousquet's Conference during the General States for Free Choice Therapy, Saintes, 2008). We agree with this view but are pending however on the possible purchase of a reverse osmosis filter (the Melusine Fountain is a product that deserves to be studied closely). Mineral water with a very low mineralisation is one of the best substitution choices, unless you have a clear spring in your garden. If you are used to a certain water... test it! But beware of the luring advertisements that want to make us believe that calcium and magnesium in water are easily assimilated by humans. Where does osteoarthritis come from?

This information about using the [Magnetic Fountain](#) is mainly an invitation to experiment for yourself, and go further. Listen to your body's reactions and be aware of the thoughts that come to you. Use your intuition and it will tell you more each time.

## Starting with the *Magnetic Fountain*:

When we wake up, our body needs to rehydrate and remove the waste it has accumulated during the night. The key is to drink magnetised water (with the [Magnetic Fountain](#)) in the morning on an empty stomach.

It is advisable to drink a large glass of water to start with, and then after a few days you can gradually increase the amount until you reach the quantity contained in the (famous...)



blue bottle. It is also advisable to allow the water to move freely in your body for a sufficient time, about 30 minutes, before having breakfast. This way, water can perform its wonderful task of cell regeneration in optimal conditions.

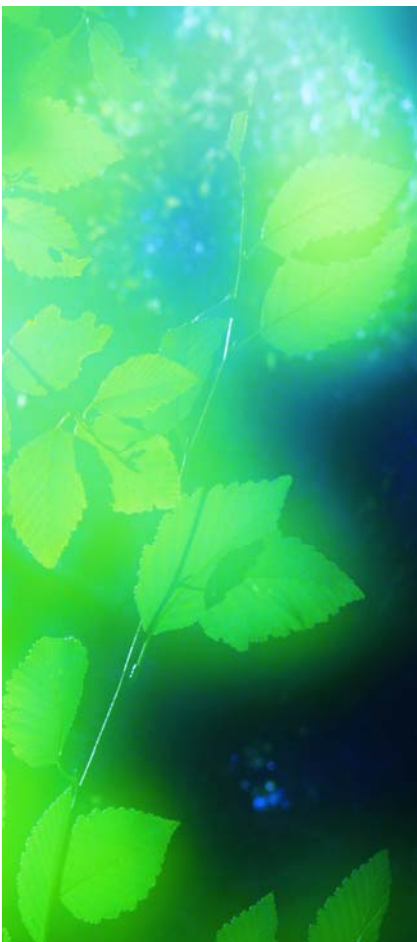
### How to increase the morning dose?

It all depends on you. You are free and are even encouraged to act according to your feelings. However, for those who want some guidance, here are some tips. By introducing live water into your body, you are gradually re-activating cleaning circuits that were dormant. For this reason, your body will gradually clean itself by eliminating toxins that will naturally leave your body. By drinking on an empty stomach, you will help the body's main removal processes through the kidneys and intestines. You may however notice that you sweat more, need to blow your nose more frequently or other similar reactions. It depends on what you need to evacuate, the life you lead, your nutrition and how much water you drink daily.



Those who are more cautious may start with the quantity of a shot glass to increase the dose step by step. Some people start by drinking a litre when they wake up... so follow your own pace. The finest capillaries of the human body are located in the head and particularly in the inner ear. If you experience painful sensations it means that cleansing is removing a lot of waste in these sensitive areas. In this case, simply reduce the dose to clean gently. A large glass, 250 ml, is a good starting dose.

### How long does the first cleansing last?



Life is creativity and variability. To give you an idea, let's consider one to two months taking doses between a large glass and a full blue bottle. If you mostly eat your food raw and do some exercise, the process will go a little faster. Oxygen in the air is magnetic. For this simple reason, the amount of oxygen increases near the Magnetic Fountain and yourself. Its concentration also increases in your body, as it contains magnetised water.

Magnetic water absorbs more oxygen than ordinary water, this encouraging the correct functioning of internal organs. In the book *Au cœur de la santé* (*At the heart of health*), the very famous philosopher Peter DEUNOV explains that treatment through magnetism triggers three distinct periods of successive elimination at decreasing intensities.

If you duly practice magnetism, you will notice how your magnetism reinforces itself to a surprising extent. It is important to note however, that having more fluids does not mean properly knowing how to treat the morbid energies that we evacuate from



others' vital fields. In addition, not knowing how to properly work with the polarities will attract more dead orgone (DOR: Dead Orgone Energy, see the works of Willem Reich) towards you.

Imposition of the hands is an art that has its rules. One of the best books on the subject is *Le pouvoir bénéfique des mains* (*Hands of light*), by Barbara Ann BRENNAN, a high quality healer and former researcher at the NASA. She first specialised in studying terrestrial magnetic fields and then those of humans with admirable rigor.



### How is it possible to consume more vitalised water?

In addition to drinking magnetised water in the morning on an empty stomach, drinking a glass before going to bed is extremely beneficial. This dose will foster a restful sleep and will prove highly beneficial for the body's metabolic processes during the night. Furthermore, the larger the time span between finishing dinner and going to bed, the better you will sleep. Certain wise men/women from India and elsewhere recommend not eating after nightfall.

It is advisable to follow the works of BATMANGHELIDJ as much as possible, as he is an absolute reference in this field. In short: we must drink in the morning, half an hour before meals, two and a half hours after meals, and every hour. These recommendations are intended to cure the seriously ill and reduce certain dehydration symptoms that are wrongly considered as specific diseases: arthritis, allergies etc. This is the makeshift medical treatment that he developed when he was in prison, accused of being a political opponent. Without medication, he discovered how to relieve and heal ulcers with water; only water. This is hard to believe, isn't it? If it were true, it would be known...

**Let's clarify the statement.** Drink in the morning and then wait half an hour before eating. Have a good breakfast (do you know the Budwig cream?). Wait for two and a half hours before drinking another large glass, and repeat every hour. Do not drink half an hour before lunch. Do not drink during the meal, and then drink a large glass again two and half hours later, then every hour until half an hour before dinner. Follow the pattern until bedtime.



This is an optimum recommendation, capable of relieving various illnesses. If you are healthy, just follow this program as much as possible, in accordance to your daily activities.

It is important to note that Dr. BATMANGHELIDJ's works concern ordinary people and the usual food of our time.

If you have a healthy diet that is rich in high quality vegetables, it is likely that your water needs are lower. In this case you can drink less without risking dehydration.

## How does it affect your sleep?

Consuming vitalised magnetic water allows the human body to regain its connection with terrestrial magnetism. The intensity and the quality of our planet's magnetic field varies continuously because magnetic fields carry information. When

your body is vitalised with living water, its internal magnetic circuits start functioning again, leading to several changes. The first is a resynchronisation with the planet's rhythms, helping you fall asleep at a certain time and wake up at a certain time as well. We all have our regular sleeping hours and you will quickly find yours.



Consuming electronic devices (television, computer etc.) partially distorts our magnetic lives. With the [Magnetic Fountain](#) you can easily restore this. In addition, the terrestrial magnetic field pulsates at a frequency that was observed by magnetisers while they were treating patients. This frequency was at 8 Hz a few years ago, and now it is at 12 Hz. This is why we correctly feel that time passes more quickly. Certain structures within the brain are fixed at the frequency of terrestrial magnetism and, like a computer, when the clock frequency increases, more calculations are made per second. In humans, this increase in frequency results in an amplification of consciousness and numerous secondary consequences. This is bioenergy. All this is explained and demonstrated by the

works of Yves ROCARD. (See page 62).



Regarding the harmful effects of electrical pollution, the book ***The electricity fairy; fairy or witch?*** by Annie LOBE is extremely documented. This book is even relatively alarmist, not without reason maybe. However, the author clearly ignores the works of REICH on orgone which is almost exactly the same as what the Indians call



prana. If you look into the blue sky you will see balls that move in every direction, and also what floats on the eye's surface. A distinction must be made between the two. Orgone is the rediscovery of prana in the United States, but with sophisticated means of measurement. When REICH was brought to trial, the ruling stated that orgone does not exist. It's not quite up to the courts to resolve a scientific debate isn't it?

REICH's devices were destroyed with an ax by employees of the FDA (Food and Drug Administration), probably because they gave no results. In addition, it was forbidden to send books containing the word Orgone from one state to another. Only now can we therefore rediscover his books.

## Orgone is soluble in water

We must distinguish between living orgone, dead orgone and the Oranur effect. In simplified terms, the Oranur effect is a chaotic destructuring of orgone caused by electric devices or other. As orgone has a strong affinity with our organism, it follows that this electric chaos disrupts its biological organisation.

It is possible to protect and restructure orgone through various methods ranging from Feng Shui to Biomusic 6in1 ([www.biomusic-6in1.net](http://www.biomusic-6in1.net)). For more information please consult *The Orgone Manual* by James DEMEO. Spiritual images (photos of a shrine, a very spiritual person, etc.) release forces which will be explained in the manual of advanced uses of the current manual.



As water permeates the earth when you water a plant for example, Spi waves impregnate magnetic fields and completely change their biological effect. It is not about believing but rather about knowing and all this is demonstrated and demonstrable. The works cited in this manual are additional proof. To put it another way, it is about informational chemistry: just as sugar dissolves in water, information of a certain frequency can dissolve, form or structure a magnetic or informational field. According to you, what does worshipping in Spirit and Truth mean? Spirit refers to energy, and Truth refers to information. In this case, the great evil is misinformation, as evidenced by the book: *Media, Propaganda and Democracy*, by CHOMSKY.

## What are the effects of the Fountain on food?

Food in its natural state is rich in water. By magnetising your soup, your plate of rice, your carrot juice... you act on the water contained in your food and increase your meal's vital vibration. You will also notice an improved taste which is particularly noticeable with wine.

## How to make a demonstration with wine

First of all, it is preferable to choose an organic wine. Nowadays, wine contains so many chemical additives that it could be banned by the Geneva Convention (treaty that bans chemical weapons). Keep the bottle within 9 metres of the [Magnetic Fountain](#). Its scope is so vast that it would distort the experiment. Thus, at good distance, pour two equal doses of wine in two identical glasses. Make sure that they smell identical. Then magnetise one of the glasses in the fountain. Go back to the other glass and at a distance no less than 9 metres from the fountain, compare the tastes and smells of the two glasses. The difference is spectacular ... (See testimony page 49). You can do the same with water but wine lovers are more experienced in appreciating taste in detail. With water, sensitive people also perceive the difference either in taste, with a pendulum, or through a kinesiology test.



## In which direction should I turn the ring?

The choice is yours. Do it without asking yourself too many questions and your intuition will instantly tell you the intensity and direction that you need at that moment. If you turn it in a clockwise direction, you activate it in terrestrial frequencies. If you turn the ring anti-clockwise, it will activate what is known as cosmic energy; greater than what the earth can produce alone without the help of radiation from other celestial bodies. The terrestrial magnetic field works like the human skin: it filters certain radiations and lets others pass.

The Magnetic Fountain's magnetic field acts as a funnel for vital waves, curving certain trajectories of these vital waves within the crystal cylinder.

## How to use the blue bottle?

Test! There is reason to do so. The blue bottle deserves your attention. By filling it and leaving it in the fountain, you allow various beneficial energies to accumulate in the water. The magnetic field instantly acts on the water molecules and their organisation. There are other levels of action for which it is good to give water time to become vitalised. For this reason it is desirable to fill the bottle after use and leave the water in the fountain.





You can also hold the blue bottle in your hand and, while focusing in detail on your bodily sensations, feel if something happens. Compare your feelings before and after doing this. It is good to place the bottle in a bright place because its color specifically selects some of light's beneficial frequencies and transfers them to the water.

### What is the supporting medium of magnetism in the human body?

Yves ROCARD, a great scientist, waited until he was retired to take a public stand in favour of the scientific credibility of dowsing and magnetism. He located magnetite in several areas of the human body; the joints and the eyebrows for example. There is no doubt that sensitive people know how to detect the interaction of these tiny bodily magnets with the variations in the terrestrial magnetic field. This is how it becomes possible to feel the presence of underground water. The water current slightly changes the local magnetism and information load. Some feel the variation while others are able to decode the information transmitted by the magnetic field. While some official “scholars” remain incredulous, no secret service has ever denied recurring neither to mediums nor to those who are especially sensitive. You can listen to the captivating interview with Jean-Louis Crozier regarding this topic on the following website: [www.plusconscient.net](http://www.plusconscient.net). The interview with Yves ROCARD (page 64) which is available in the annex explains magnetic evidence in a clear and vivid manner.



### Can I use the Magnetic Fountain to magnetise myself?

Yes, of course! The ring is detachable and it is possible to magnetise yourself from head to toe. However, it is simpler if someone else magnetises you. Generally, unless you have a thorough knowledge on magnetism, it is preferable to use the south side of the magnet. The south side of a magnet deploys an expansive field, its action being, so to speak, magneto dilating. The south side is invigorating, stimulating and energising. Sensitive people can just place their hands on the ring (the ring can be placed either on the fountain or on a table) to feel beneficial energy from it. The north side of a magnet is to be used, for example, on an area that has received an impact. It can be considered as the magnetic equivalent of an ice bag.

### How to magnetise yourself

You can put the Magnetic Fountain on the ground, place a wooden chair (avoid plastic) on top of it, and sit on the chair so that the magnetic axis of the vortex coincides with the spine. This way, the effect is as if you take a cosmo-telluric shower. By remaining seated for a moment with the fountain underneath, you recharge yourself with energy.

It is very beneficial for you. It helps, but nothing replaces energetic, informational, personal and regular activity. There exists an impressive variety: conscious gymnastics, yoga, aikido, meditation, relaxation, thai chi.

You can magnetise yourself by sitting on a chair that is placed above the Magnetic Fountain.

You can also stand on a chair. This way, the chakras (see page 72) in the feet, ankles and legs are also exposed to the vortex zone. Some sensitive people strongly feel the rotation movement while others feel strengthened, cleaned etc. Astral larvae are ejected when you enter the vortex. Similarly, the regular consumption of magnetic water also has an effect at this level.



Peter DEUNOV explains that we must stretch our arms and legs out when practicing Paneurhythmy, a Bulgarian energy dance. This is because some forces pass through the body only when the limbs are extended (the same applies for will power...). Like in aikido, it is the fact of selectively mobilising the extensor muscles, while mentally projecting the energy to infinity, which allows a correct application of the





techniques. In thai chi it is the tension or extension of the tendons which allows the flow of chi. An energy that is compatible with chi is available just above the [Magnetic Fountain](#) and inside it. For example, it is possible to capture it through the left hand and emit it through the right hand. It is also possible to find a position in which your own electromagnetism draws into the vortex.

### How to take a bath with magnetic water

Simply place your [Magnetic Fountain](#) near your bathtub, on a chair for example. Wrap the shower hose around the crystal cylinder so that the water passes through the magnetic field before flowing into the bathtub.



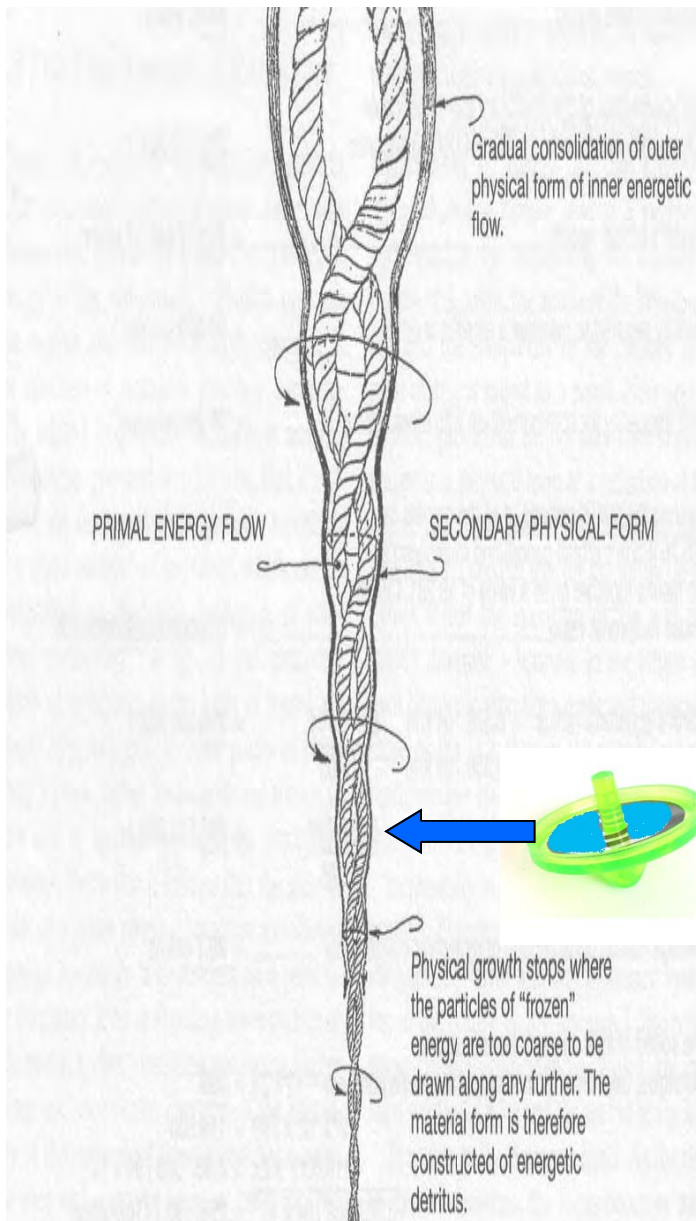
Moriteru UESHIBA demonstrating an Aikido technique



If you place the hose in the north-north repulsion area (under the ring in levitation) you get water that soothes sunburns, for example. If you place it on top ... what do you feel?

Water from mountain lakes is naturally magnetic, just like water from hot springs.

This small summary is intended to help you understand the position of the vortex which is secured to the Magnetic Fountain. The vortex acts on water by cleaning it electromagnetically and by communicating energy to it, as evidenced by the analysis with the Sonoscope. (p.28)



First quiz question:

What happens when a spinning top is placed in a magnetic vortex?

The answer is available in video on:

[www.fontainemagnétique.fr](http://www.fontainemagnétique.fr)



Second quiz question:

What happens when a ball is placed in a water vortex?

The answer is available in video on:

[www.fontainemagnétique.fr](http://www.fontainemagnétique.fr)



“I have had the opportunity to test the [Magnetic Fountain](#) for several years on both a collective and an individual level.

On a collective level, Thierry Keller visited my Art and Well-Being Center in Bugarach and proposed water from a magnetised source to all the participants of the *Yoga of Sound* course that I conducted. The result was spectacular: we reached intensity peaks in the musical and meditative phases.



Alain BESSON : pianist, composer, choir and orchestra conductor, user of the *Magnetic Fountain*.

At the individual level, I experienced the Fountain on Salt Spring Island (near Vancouver). A few years ago, the great philosopher Omraam Mikhaël Aïvanhov suggested I should compose spiritual music.

Until then, I was never quite satisfied and I partly attribute the success of the first three songs I had the pleasure of directing in the world premiere at a Music Festival for Peace in Canada to magnetised water.



In summary, I can only attest that this invention has been extremely beneficial for me at all levels.”

First outdoor concert of the Universal Choir at the famous World Choral event (largest choral gathering of North America: 200 choirs from around the world, 10,000 choristers, 300,000 viewers). Spectators were delighted.

[www.choeuruniversel.com](http://www.choeuruniversel.com)

Alain BESSON  
[www.alainbesson.org](http://www.alainbesson.org)

### Shoana is a nurse and a bioenergy therapist

“It has been 14 months since I acquired my Magnetic Fountain. Regarding the **physical** aspect, I noticed that magnetised water gives me the feeling of being truly moisturised and refreshed, much more than with other waters. I also noticed on repeated occasions, particularly during periods of very high activity, that magnetised water soothes and refreshes me considerably. I use active coal and I have come to realise that with magnetised water, the coal is much more efficient. Sometimes I also communicate information to water using the fountain as an amplifier. At the **psychological** level, consuming magnetic water intensifies my feeling of presence in the world through a higher body awareness which is itself also positively changed. I noticed that drinking magnetic water cleanses my senses, refreshing them in all senses. At the **energy** level, to say only the essential, magnetic water increases the density of the etheric body. I also found that my intuitive abilities became optimised, clearer and more precise.” Shoana agrees to talk about her experience with the **Magnetic Fountain** but only with therapists because she leads a very busy life. Thank you for your understanding.

### Claire H. “I lost 25 kg!”

I have been using the Magnetic Fountain for 4 years. I discovered it at a friend’s house and I bought one too. I quickly had an energy boost which helped me in my overflowing business activity. My sleep has also greatly improved. After 6 months I asked Thierry KELLER if it was possible to foster weight loss through magnetised water. He gave me a simple little protocol. I drank two and a half litres of magnetised water a day. A year later, I gave my testimonial at a conference; I had already lost 20 kg. I measure 1.65m and I finally went down from 85 kg to 63 kg, which is my current weight. I now drink a litre and a half of magnetised water per day and my weight is stable while I eat as much as before. During a friends’ visit, I had a wine that was not as good as I wished. By passing it through the fountain, it became delicious. I also sometimes do this with the meals I prepare. My children and friends are pleased to drink magnetised water each time they visit me. I am now 70 years old and the **Magnetic Fountain** greatly contributes to my well being. Claire agrees to give her testimonial about her experience with the **Magnetic Fountain**.



# Attention and intention

In the words of an experienced bio-energetist:

**“The intention determines the vibrational frequency”**

What is intention if not the active component of consciousness? The human being is above all a conscience. This conscience has the necessary tools for its manifestation and perfection. It is an obvious fact to any attentive person that everything that is manifested and observable in this world is polarised.

Consciousness is no exception. A magnet is polarised north-south and by manipulating two magnets close to each other, it becomes evident that the respective arrangement of the poles organises the distribution of the forces and can even move objects. Consciousness, in turn, is polarised in attention and intention.

Advanced physical science is capable of bringing these considerations to the limits of psychology and bioenergetics and uniting them into a simple, coherent and effective concept. The use of the Magnetic Fountain can be summarised as being clearly aware of our intentions when we use it and then focusing specific attention to its effects. From there, you will quickly learn more than what can be written about it.

Intention and attention, like everything that exists, are supported by information organisation processes that are conducted through energies of a particular intensity and location and that are as such, subject to interaction.

“In fact, the active component brings more out of attention in this regard. In order not to waste our energy, it is important to exercise a certain vigilance that impedes this energy to spread out anywhere. Otherwise, this would result in wasting energy that can be used for personal growth instead. The method for capitalising this energy into everyday life is to always keep a part of consciousness in ourselves, rooted in the body. For this process to work, attention must feed on mental substance. As for intention, it is generated by emotional energy. This embodied intention contains two variables: clear and unclear, underpinned by desire or non-desire. It is not uncommon for an intention that seems clear to hide an unclear intention triggered by a desire: i.e. absolutely wanting to help or heal everyone can bring the question: why? Is it because of a need to be recognised, valued? The problem is that when analysing a person in the context of therapy, there exists the risk that the therapist leaves his own memory deposits on his patient.”

**Shoana, nurse and bioenergy therapist.**



One of the aspects of quantum physics concerns working on energy levels, and the levels in the structuring of material, interacting with certain levels of human consciousness either through resonance, harmonic, or polarity, etc. It is for this reason that experiments made with the most powerful and expensive research equipment give misleading results at best. The reason is simple: the thoughts, hopes and intentions of the experimenters are able to influence the parameters that are being studied, fact which agrees very little with the materialistic conceptions of the nature of matter and energy. On the scale of elementary particles (atoms, electrons, photons, fermions...) and phenomena of interactive radiation (sunlight, biophotons, infrared radiation...) we are in orders of size and processes

that are comparable to the bio-electric processes that occur in the human body, as can be evidenced with modern electronic tools: Pier RUBESA's Sonoscope or Professor KOROTKOV's GDV (see page 73).

In other words, part of the traditional knowledge about human energy (electro-magnetic shell, acupuncture meridians, etc.) is now objectified, demonstrable and measurable. It comprises a whole new field of knowledge in which one enters through an increasingly clearer consciousness of water and energy. Water is the medium of conscious energy.



# Plants, Waves and Interactions

An article from the file on **la Révélation Verte** (the Green Revelation), from the NEXUS journal No. 65, November-December 2009.



A Canadian researcher has highlighted the electric fields that enliven all living beings. This was a discovery that overturned the vision of our relationship with plants and all of creation. (Read the famous book: *The Secret Life of Plants* by Peter Tompkins and Christopher Bird, Presses Pocket editions, 1990). By paying a little attention, we can still find evidence of the reality of alchemy!

(...)

**NEXUS:** Thank you for presenting us your works.

**Pier Rubesa:** I study the electric fields emitted by all living beings; living organisms, human beings, plants, animals, water, and also cells, organs... Scientists have known about these electric fields for over a century but have regarded them as a kind of unwanted noise.

This phenomenon represents a subtle field, an electric field at audio frequency, in the low frequencies, that can be heard electrically, not acoustically. It is always present around us: it is the silent music of an interaction between human beings, but also with animals, plants...

This phenomenon is dynamic because our breathing, heartbeat, digestion, etc. are constantly changing so that the emitted electric field is never the same, even if it has characteristics that are unique to each living being.

## **Like fingerprints?**

Every living being emits an electric field of its own. The difference is that the shape of our finger is fixed, while the electric field is dynamic. We can look at it and say “This is Paul and that is Mary”, but if they do something, they change the electric field because an interaction with matter and the environment takes place. Each of our movements changes our electric field. Why? Because movement is a vibration: opening our arms or moving our head thus modifies the electric field we emit.

## **How about meditating or praying?**

In the biological system, there are two kinds of vibration functions. The first are the biochemical functions which occur at high speed and very high frequency. Above this are the biological functions at low frequencies. For example, the heart rate is at 1.3 / 1.5 Hertz while our breathing is less than one Hertz. This also occurs in plants, where the various functions including cell division develop at low frequencies. So if we meditate or pray, we lower the frequency of our brain, thus affecting our electric field.

## **How did you come to this discovery? ([See interview on www.fontainemagnetique.fr](http://www.fontainemagnetique.fr))**

I was researching sound in my studio in Toronto. One day, I created a specific sound that began to react with me: the sound changed as I moved and I did not understand why. I therefore decided to study the phenomenon, which led me to create a small circuit and then develop the Bioscope. This device is now being used for the past five years in laboratories located in Switzerland, France, the United States and Japan so to study this dynamic electric phenomenon that exists around the living.

## **Can you make a demonstration?**

I place this plant on the sensor and its signal appears on the screen. Then, to see the interaction with a person, I approach my hand to the plant without touching it. The changes in the characteristics of the plant's electric field immediately become evident on the computer screen. It is therefore easy to see this dynamic reaction between different people, plants and animals, especially because the field around living beings is sensitive to the slightest changes.

We will now perform the reverse experiment: I place the Bioscope's electrode on myself to capture my own electric field. We will see changes in my electric field when I approach the plant [Pier performs the experiment in front of us].

Here, in the spectral analysis, we can notice the interaction between my body and the plant which completely changes the characteristics of my electric field.

## **So nature...**

...certainly produces a major effect on us. When we walk in a forest, a field, beside a river or near the sea, it creates a very specific electrical action in the depths of our being. Analyses show that we receive electrical information that interacts with the atomic and molecular processes in our body. This electrical action, now demonstrable in a scientific manner, is fundamental for understanding life, health and our well-being. In addition, it is a unique and individual phenomenon.

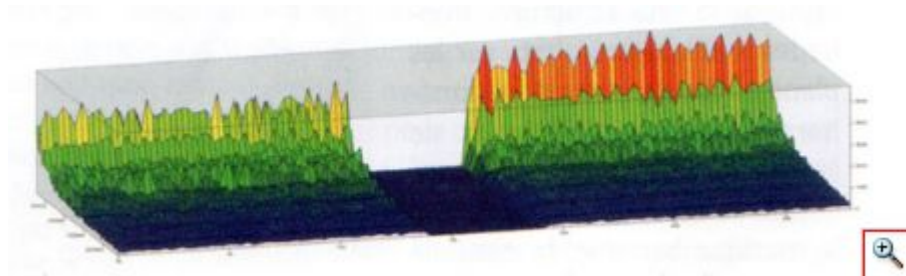


**Interaction is thus not identical from one person to another, nor from one plant to another...**

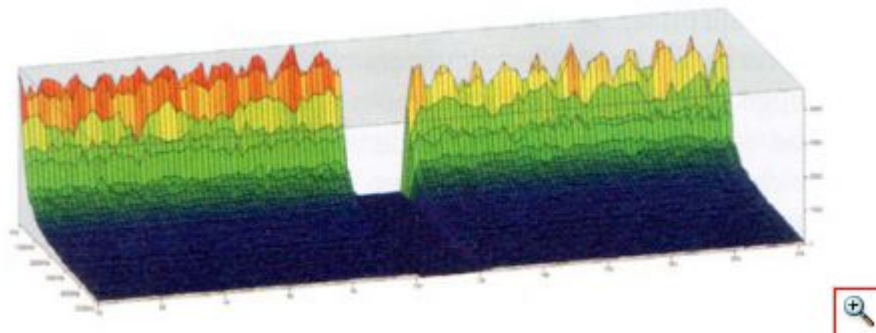
No, this action is truly unique. Some respond better to some plants than others. We can see this in the signal analysis: the electric field may not vary significantly with a certain variety, but a lot with another. Thus, the field analysis allows us to conclude whether a plant is good for us or not. The same is true with animals. This phenomenon can also be observed in the forest when a tree grows away from its neighbour. It is not only to find more light for example; it primarily means that the interaction between the two trees is negative. This can also be measured.

### **Can we conclude that plants have emotions?**

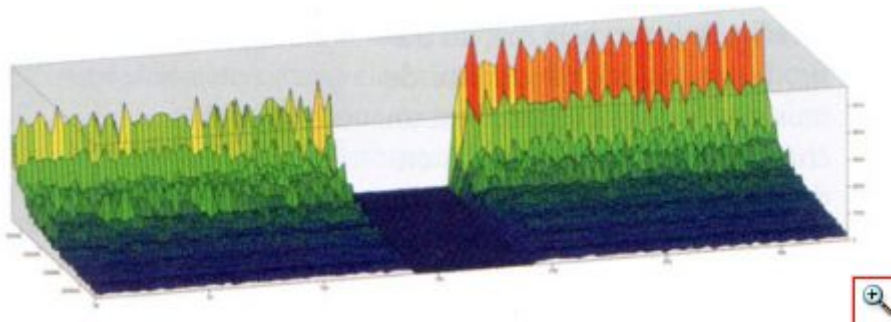
From my point of view, everything that lives has a certain sense of his life, a form of consciousness, but my research cannot prove this indubitably.



On the left, the electric field of a plant. On the right, that of a human being. Both are measured with a Bioscope.



On the left, the electric field of a person. On the right, his electric field when he touches a plant.



Graphs representing an experiment made on two tomato plants in a greenhouse in the Netherlands. The diseased plant is on the left and the healthy plant is on the right. There are significant differences in the structure of the electric field, and we even start to see breaks in that of the diseased plant, when there is always a continuity of energy in healthy plants. The same phenomenon occurs in humans and animals.



### **Have you ever performed experiments that show other similarities with humans?**

I have already measured the effect of music on plants: we see immediate changes in their electric field. This makes sense, since music is a physical phenomenon that manifests itself in space with its vibrations, its waves and its own strength. It also delivers information which reacts with the living, be it plants, humans or animals, thus changing their electric field.

### **This explains the many experiments that prove that plants prefer Mozart...**

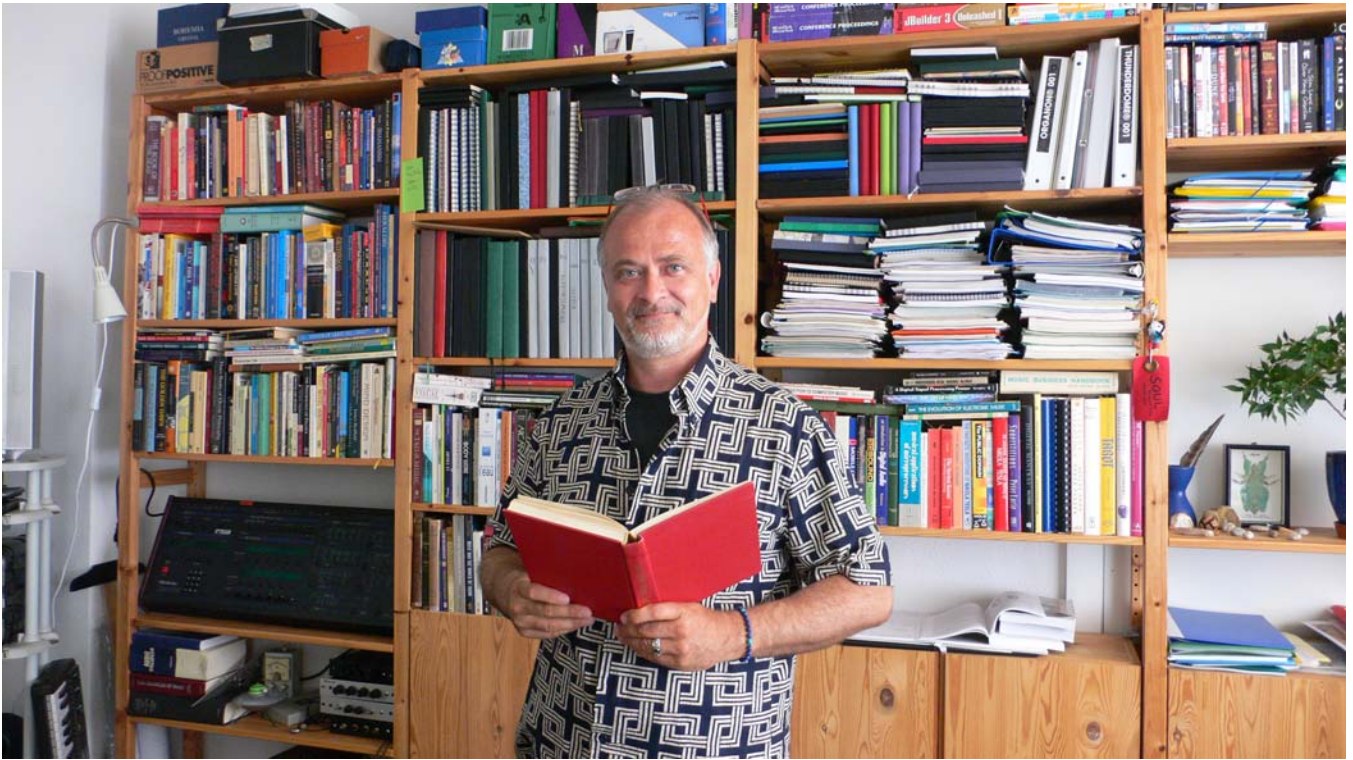
(This refers to the work of Joel Sternheimer and proteoides)

Yes, my studies show that the more structured the music, the better it works on plants by increasing or improving the characteristics of their electric field. Examples of structured music include baroque music, classical music or some forms of jazz. On the other hand and almost unsurprisingly, heavy metal disrupts the electrical field because it moves too much. Techno music also reduces and destroys the structure of this field. Not in all cases however, because each being is unique and can adapt. In general, certain music styles or sounds destroy this electric field.

### **The same applies in urban life...**

Indeed, street noise, traffic, hundreds of music and television channels... this creates a sound chaos. It is known that sound waves pass through matter and therefore our body, affecting the nerves, muscles, and bones and tiring us by destroying our body's vibration structures. Silence enables our field to form itself without external influences. It is therefore very important to pay attention to the sounds to which we expose ourselves and to sometimes seek being surrounded by silence.





**Can you observe a difference in the electric field in case of illness?**

Yes, significantly. In the case of disease, a chemical process is at work but the disease begins in large part by changing the electric field. This is normal because our electric field is the information barrier that protects us and it is fundamental in this process.

**You mentioned that plants can heal us, and in any case, have a positive effect on us...**

Yes. I have performed many experiments on the influence of plants on health. It appears that living in an environment with plants recharges our electric field and can heal us. We also tested the actions of plant extracts, herbal teas or the application of essential oils. We found that it drastically changes the information in the electric field of a person because plants do not only generate a chemical action but deliver information via the electric field which allows our body to react; sometimes strongly even if it is only an extract.

**Can you see the negative influences of a plant?**

Yes, when they are toxic or cause allergies in some people. Their action then disturbs the electric field.

**Earlier on, you mentioned the forest...**

When we enter a forest, a chain reaction is triggered: as we go beyond the first tree, it reacts to our presence and it transmits information to the whole forest in an instant. It therefore knows about our presence because there exists a subtle communication and a real interaction then takes place: we influence the tree and the tree also influences us. We all already knew about this to a certain extent, but our contribution is to be able to measure it. This effect is obviously particularly beneficial for us.

## Other experiments on plants?

I would like to show you some examples of laboratory experiments which challenge the profound question of life, food and health. I shall start with a test on clover performed for a university. We measured four samples of clover and found that two of them presented a completely different electrical characteristic compared to the others. It was made clear to us only later that those two clovers had been genetically modified. Their chemical structure is still 99.96% the same, but the differences in their electric field and their structure are astronomical. They have a completely different dynamic.

In a Swiss university, we compared the electric fields of natural corn and GMO (Genetically Modified Organism) corn. Again, we confirmed that even if the chemical composition is very similar, the structure and the differences in their electrical energy (and therefore the information contained in their electric field) are completely different.

This raises the question of whether GM is recommendable for food. So far, all studies relate only to its action and chemical functions. However, we show that it is also important to measure the energy action and the electric action. When animals eat corn, their body takes chemical action through the digestive process. But there is also information contained in the electric field of the corn itself. Whether it is natural or GMO, it considerably changes the information that enters the animal's body. This is important because for thousands of years, the body (that of humans and animals) has gotten used to understanding the chemical and energy processes that take place within it. That is, the information delivered to the body.

**If the body understands the chemical composition but does not understand the information related to this composition, what are the consequences?**

I am not against GMOs, a priori. We even found that some GMOs generated an electric field that roughly corresponded to that of a natural sample. Other samples however, with just 0.5% of GMO content, completely change the electric field. It is therefore necessary to perform further research to understand the action of GMO products produced in laboratories.





**At the beginning, you mentioned that water also emits an electric field...**

I have performed many tests on water, together with universities and large companies in France, the United States and Japan. Water is a special material; it is very bioactive and we can actually measure its electric field. We found that it changes by simply placing a plant next to it.

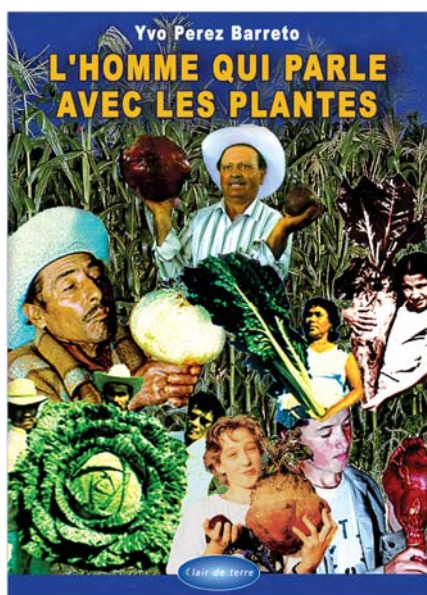


One of the most interesting experiments I have made during these past five years was focused on water. It took place in a laboratory in Switzerland, in a room that was completely isolated from the influence of external waves; whether electromagnetic, acoustic, light, etc. We performed this simple experiment with various people, several times and on different days: a glass of water was placed on a table and the door of the room was closed, so only the water was recorded. A person had to stand in the middle of the room at about 3 meters from the glass. He had to close his eyes and count to 30 before opening them, while concentrating on a thought on the glass of water. All results were exactly the same: water also reacts when we watch it, with a modification in its electric field during all the phases! These experiments continue to challenge us: what is this phenomenon that we measured under truly scientific conditions?

### **A look, a thought could therefore modify a plant's electric field?**

The question is, whether it is possible to change and influence plants with our thoughts... As we have already explained, a thought can change an electric field that influences our surroundings. I am therefore convinced that with our thoughts, we can transform and influence not only plants and water, but also ourselves and our world.

Bernard, Peter, [Don José Carmen](#), Philippe and Frederic would agree with this...



Extract of the book *The man who speaks to the plants*

*So you believe that plants have some form of intelligence that allows them to communicate with humans?*

[Don José Carmen](#). : *"Of course! Just like any animal, any person, and even anything at all!"*

In his book, Don José explains:

*"I started by sitting down next to the plants and I began to observe them. I then asked them to help me. Plants, like all living beings, have some form of intelligence that allows them to communicate with us, if we just listen. Sometimes during the night, I feel that my plants are thirsty so I walk to my field and I water them until they are satisfied.*

*It is absurd to apply watering advice exactly because like people, each plant is different."*

(c) Clair de Terre Editions





(c) Clair de Terre Editions



***Ce qu'il faut, c'est demander à la plante  
ce dont elle a besoin et ce qui lui est superflu.  
Mais les scientifiques,  
imbus de leur importance,  
ne voient pas la nécessité de procéder ainsi.***

***We should ask plants what they need and what is superfluous.  
Scientists however, imbued by their importance,  
do not think it is necessary to proceed this way.***



# Yves ROCARD,

## father of French postwar physics



**With a profoundly original personality, Yves Rocard has defined his era. Many of his students from the Ecole Normale Supérieure speak with recognition of how much they owe to him.**

**If his precursive ideas on the science- industry relationship have become a school in themselves and are now widely applied, his recommendations on how to organise scientific work, albeit very fruitful, have not been considered sufficiently.**

Yves Rocard is Michel Rocard's father. He entered the Ecole Normale Supérieure in 1922 and was received in the physical sciences aggregation contest in 1925. Through a scholarship, he then studied at the Faculty of Science to prepare a doctoral thesis. He achieved a doctorate in mathematics in 1927 and a doctorate in physics in 1928: the molecular theory of light diffusion. Light refers to the electromagnetic waves visible to the human eye. He was then in charge of the Peccot Foundation at the Collège de France and was appointed senior research fellow in 1932. He became a physics lecturer at the Faculty of Clermont-Ferrand in 1939 and on the 1st of October 1939, a lecturer in experimental fluid mechanics at the Faculty of Sciences in Paris.

During the Second World War he was part of a resistance group. During a particularly dangerous mission, he flew to England in a small plane. There he joined De Gaulle who appointed him as the research director of the free French naval forces. He was particularly interested in the detection by English radars of strong radio emissions from the sun, interfering with the purely military use of the radar.

After the war, Rocard returned to France and began his real career. In 1945 he became professor of physics and director of the physics laboratory of the ENS, succeeding Georges BRUHAT. He put up a site for radio astronomy, even managing to get his hands on “2 Wurzburg German radar mirrors” with a diameter of 7.5 metres each, essential for starting such a project. Using his wartime contacts, he managed to access the top secret research centre of the National Navy of Marcoussis, Essonne. He was also the inventor of the first radio heating lamp and made studies on radio-blind landing.



Break at the atomic bomb experiment centre located in the Sahara (Adrar), after the success of the first French atomic bomb. *Gerboise bleue* (Blue Gerbil) exploded on the 13th of February, 1960.

In 1947, he became the scientific adviser of CEA's military programmes after setting aside Frederic Joliot-Curie, who was considered too influential a member for the PCF. In 1951, he was responsible for the scientific programmes that lead France to master nuclear weapons. In some way, he is the father of the French A bombs and H bombs.

In 1952, despite the pioneering work in radio astronomy conducted in France, it became evident that other countries

were using more powerful instruments which the French could not match. Rocard vigorously supported the project and the Ministry of Education granted 25 million francs to the Ecole Normale Supérieure. A place was found for the radio astronomy observatory at Nançay, an area famous for its 32 radio telescopes aligned in full field. In 1955 and under his leadership, the physics laboratory of the ENS in Paris started constructing the Linear Accelerator Laboratory in Orsay, Essonne, to give scientists their first electron accelerator.

Meanwhile in 1957, he also undertook research on: semiconductors, the wind stability of the Tancarville Bridge and dowsers' sensitivity. In 1963, the journal *Science et Vie* (Science and Life) (May 1963 No. 548) devoted an entire section to him which includes his research in Geobiology through dowsing. "After years of controversy, *Science et Vie* stated 'Yes dowsing is real!'".

The author of this article, Charles Gregory MAUBERT, extensively interviewed Professor Yves Rocard; he explains why the divining rod starts moving at certain moments: "(...) *water that filters in porous areas under the action of a pressure difference, brings about electrokinetic potential through the Quincke effect which is well-known since 1850. These potentials cause electric currents to circulate in the earth. In addition, in many cases, nearby phenomena related to the presence of water cause consequential potential differences in the ground which are often more important.*"





In 1973, at the age of 70, he left the physics laboratory of the Ecole Normale Supérieure and Jean Brossel became his successor in the Board of Directors. In 1981, during the last part of his life, Rocard focused his attention on the weak values of magnetism and biomagnetism. He researched on diviners' sensitivity and on their capability of detecting a change in magnetism of the Order of milligauss. This earned him the wrath of the Rationalist Union in particular, and cost him a place that was almost reserved for him at the Academy of Sciences, which criticised his research for being "too unusual".

Something about Yves Rocard, passionate about dowsing, exists in the character of Professor Tryphon Tournesol when seen using his famous pendulum. Rocard died in Paris in 1992, year in which the French Society of Physics, "in honour of all his work", created the award that bears his name, and "rewards the transfer of technology between a public research laboratory and a private company".

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# Yves ROCARD

Annex 5

and

dowsing

**In most biographies written on Mr. Rocard, the works he produced near the end of his life on biomagnetism and dowsing are only briefly mentioned and with a tone of embarrassment. In the last of the four books he devoted to this subject (*La science et les sourciers*, Dunod, 1989), Yves Rocard engaged in a scientific exploration of dowsers' sensitivity.**

He was struck by this phenomenon in 1957, while he was setting up his first seismic sensor station. Pragmatic as he was, he grasped the reality of the phenomenon (the mason who worked for him was also a dowser, and he quickly told him where to dig a well). He was also surprised by the calm and quiet assurance of the mason, without any boasting, miles away from the usual practices of dowsers and other crooks of the "paranormal". He quickly became fascinated in the subject, worked on it, and in 1961, he published a small book in which he described his early experiences. As he later admitted however, he published this too soon.

As was to be expected, the rationalist sect reacted vigorously and launched a vigorous attack against Rocard. For them, any reference to "biomagnetism" was already a sacrilege. Dowsers were put in the same basket as fortune-tellers or astrologers. Not taken aback by these attacks which he felt were childish and sectarian, Rocard persisted and resumed his research when released from his professional obligations after 1974. After a major bibliographic effort, he showed that there were magnetic

receptors in human beings, making them sensitive to local variations in magnetic fields. The most sensitive subjects (for this sensitivity is unevenly distributed in the population) can detect very slight variations of even a few milligauss, provided they are not symmetrical to the person. These small variations in the local magnetic field are often associated with geological specifics (faults, for example) which are themselves regularly associated to the presence of groundwater.

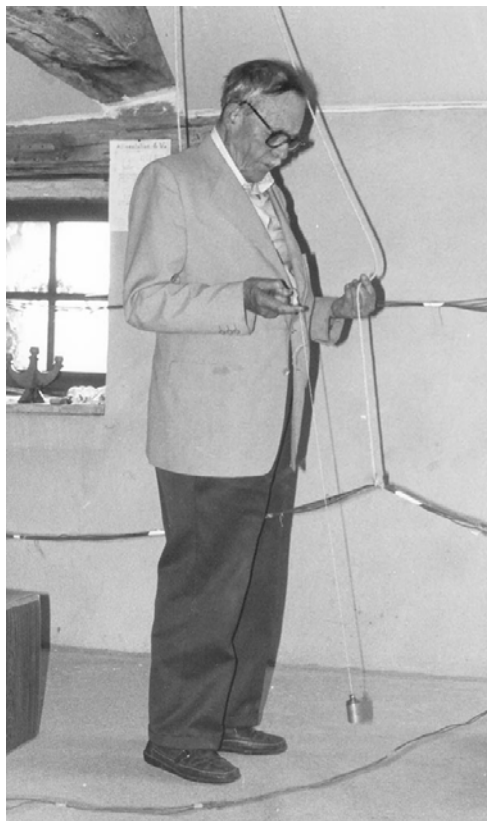
Rocard's thesis was very simple: the dowzers did not detect the water itself, but the magnetic field variations to which it was generally related. The physicist conducted numerous blind-folded experiments leading to an unequivocal demonstration that the dowzers' ability of magnetic detection was not an artifact: the percentage of correct answers they gave (presence or absence of a magnetic field) was higher (sometimes considerably) than the percentage expected if they had given their responses at random. Certainly, these experiments were criticisable in regards of their detail. However, it is not always easy to work with human volunteers subjected to fatigue and other stimuli that may affect their magnetic sensitivity. Nevertheless, these experiments provided sufficient evidence for Rocard to spend the rest of his life fighting to open this new area of investigation to science. Furthermore, the magnetic receptive centres that he announced in 1981 through purely external means (measuring the reaction of a pendulum after an artificial magnetic stimulus) were discovered in 1983 with an electronic microscope: magnetite crystals are present in the eyebrows, neck, elbows, back, knees and heels.

In the case of dowzers, Yves Rocard did not really change his work method compared to his previous activities (apart from the fact that he had less professional and experimental facilities). His high credibility in the world of physics persuaded a number of people, including *La Recherche*, which

published a very favourable article in 1981. To discredit it, the Rationalist Union went so far as to use fake helpers through a Belgian Committee for the scientific study of phenomena classified as paranormal. As interesting as Rocard's works were in this domain, they were not as strategic as the determination of an airplane's critical speed, the stability of the Tancarville Bridge or detecting nuclear explosions. In the case of dowsing, prejudice prevailed over the experimental method.

Yves Rocard manipulating a pendulum. Having come to biomagnetism through dowsing, he says it took him years to overcome his rationalist aversion to using this instrument which had however much clearer effects than the dowser's rod.

Subsequently, he performed a systematic scientific study of it using electromagnetic fields generated by frames. Here, Yves Rocard tests his sensitivity to current flow.





## “How can we doubt that man is a magnetic being?”

Interview with Professor Yves Rocard, reproduced with permission of the AFB:

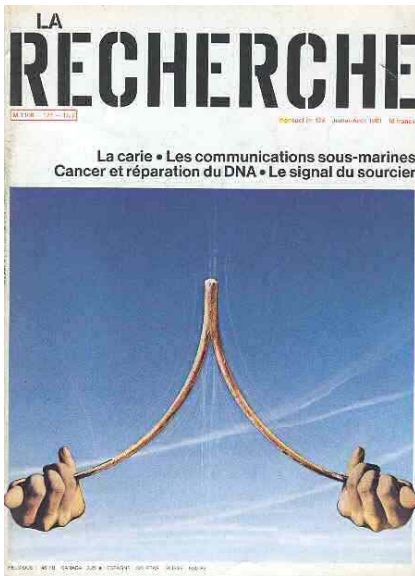


[www.francaise-bio-energetique.com](http://www.francaise-bio-energetique.com)

**Jean-Pierre Perraud met Professor Yves Rocard on three occasions between 1984 and 1989. Mr. Perraud kindly collected notes during these three interviews and synthesised them into the following interview. This is therefore a posthumous publication of information that the Professor shared with us before his decease. As shown below, the Professor's statements, which are reflected in various books and articles that he published during his lifetime, constitute an unequivocal scientific validation of magnetism.**

Jean-Pierre Perraud - You waited until retirement to take public position on phenomena as controversial as dowsing and magnetism, both of which the scientific “establishment” has always anathematised and qualified as quackery and obscurantism. Why?

Yves Rocard - You know the Latin phrase: *Est modus in rebus*, which means “there is a proper measure in all things”. Excess in anything is a fault. Electromagnetism is a phenomenon which is well known to physicists. Electromagnetic forces are everywhere; they are the ones that induce the gravitational fields which regulate the functioning of the planets and also of electrons. No spatial object, from the largest to the smallest, is above the law of attraction-repulsion, the basic principle of electromagnetism. In addition, when man discovered natural magnets almost 3000 years ago, he placed, although empirically and approximately, the fundamental laws of electromagnetism. The Greeks knew about natural magnets. They found the minerals in the region of Magnesia and their main constituent was magnetite,  $\text{Fe}_3\text{O}_4$  (iron oxide). It is now known that magnetite is present as a trace element in all living beings, including plants. Lucretius described the attracting and repelling properties of magnets in his *De Natura rerum* and Pliny the Elder attached a superstitious belief of divine origin to their effects and believed they could heal.



Did you know that the first application of a magnet to the compass is generally attributed to the Chinese? A compass with magnetised iron needles was not described until around 1200 AC. In 1600, William Gilbert describes in his famous *De Magnete* how to increase a magnet's attraction force by placing polar noses of soft iron on its surface. It was not until 1820 that Oersted's famous experiment created a magnetic field using an electric current.

Jean-Pierre Perraud - What you say of magnetism is generally known. The properties of magnets and electromagnetic forces are taught in schools. Nobody questions the electromagnetic phenomenon and the physical law that describes it. However, as you very well know, professor, most scientists reject that man also has electromagnetic properties and powers. In short, they reject the idea that man can be a magnetiser.

Yves Rocard - Contrary to what you say, few scientists know that human cells contain magnetite crystals. This was demonstrated by two American biologists, Dr. Kirschvink and Dr. Gould. I have personally met Kirschvink and Gould and read their work. Their discovery is staggering: in pigeons' brains and necks, in the heads of whales, orcas and dolphins, and also in bees' bellies and that of most insects, they found small magnetite and silicon crystals which are one tenth of a micro-cube each. As for man, Baker, an English biologist, identified small clusters of magnetite when dissecting corpses and reducing them to ashes. In humans, he even managed to locate them in the eyebrows and joints. These findings are indisputable. They were made by real biologists and with real microscopes. This opens up the field of experimentation and knowledge of phenomena wrongly described by some as "paranormal" or "pataphysical", or even medieval witchcraft. Organic magnetism is now a proven scientific fact. The works of Gould and Kirschvink as well as those of Baker have ceased all doubt and suspicion on the subject.

Jean-Pierre Perraud - How can magnetite and silicon crystals induce magnetic fields within an organism?

Yves Rocard – First of all, it is important to understand and admit that if we all contain these crystals, we do not all, alas, contain them in equal quantities. Certain individuals possess an amount of ferromagnetite which is above the average. You may say that these are the magnetisers, dowsers, diviners. How we name them is not important. It is however an indisputable fact that they have the ability to capture or emit an electromagnetic field. I followed many dowsers and I saw them operate. Their ability is real. In my essays, I wrote that before finding water, dowsers first detected the magnetic potential difference between soil that contains water and soil that does not. Dowsers are very sensitive



to this magnetic imbalance that will turn their dowsing pendulum leftwards or rightwards. Dowzers very rarely make mistakes and their indications on the soil's nature and the water it could contain are accurate nine times out of ten. I had the opportunity to verify this myself in the same way as I verified how magnetisers can mummify fruit or raw meat, drying it in a few days. As for silicon, I do not teach you anything new if I tell you that it is the most widespread element on the Earth's surface after oxygen. The whole mineral world contains silicon. Silicon has enabled the development of the fundamental laws of crystallography; its multiple applications have led to spectacular scientific advances in fields as diverse as molecular biochemistry, medicine, telecommunications, lasers, computers, etc. Kirschvink and Gould found that DNA always crystallises into ferromagnetite and silicon. This discovery is critical because it applies to the living, to biodiversity in general. The organic link that connects the mineral to the living, vegetal and human, is thus perfectly established.

Jean-Pierre Perraud - What connections do you see between the three kingdoms; mineral, vegetal and animal, and magnetism?



Yves Rocard - Without ferromagnetite and silicon, the Earth would be a dead, silent planet. Why? The reason is simple. Ferromagnetite and silicon are the catalysts that, like oxygen and hydrogen, presided over the emergence of life on Earth. Electromagnetic fields are energy generators and energy is the vital force that animates, like I said, planets and electrons but also cells.

We must pay tribute to two great scientists, [Louis-Claude Vincent](#) and the Nobel Prize winner Fröhlich. They have both shown the dielectric and electromagnetic properties of cells. Through his works on the pH and rH, Louis-Claude Vincent explained how to create an electromagnetic field within the cell itself through the self-electrolysis of the intra and extra-cellular sera. On one side, alkaline cations and on the other, acid anions that create a potential difference on the surface of cell membranes, generating a surplus of potassium ions that produce electromagnetically charged electrons. Fröhlich, meanwhile, showed the dipolar properties of cell membranes that are able to develop a double electric layer on their surface, corresponding to a field strength of 100,000 volts per cm. How can we therefore doubt that man is electric and magnetic when biophysicists prove it? The structural and organic links that unite ferromagnetite to silicon can be explained by the properties and the simultaneous activity of these two minerals.

Ferromagnetite emits an energetic electromagnetic field that the silicon crystals pick up and channel, process and distribute, at the adequate retained frequencies, to the devices or biological systems which then use them as needed. Modern biology has shown that the human being is composed of millions of crystal lattices: the hydrolymphatique system, skeletal system, cellular system, etc. The whole cellular system and the DNA that composes it crystallises, like I said, into silicon and ferromagnetite. Cellular silicon acts as a receiver of the electromagnetic waves emitted by the cellular ferromagnetite that it then transforms, adapts and transmits to the cells in the form of energy or information, which are the same thing.

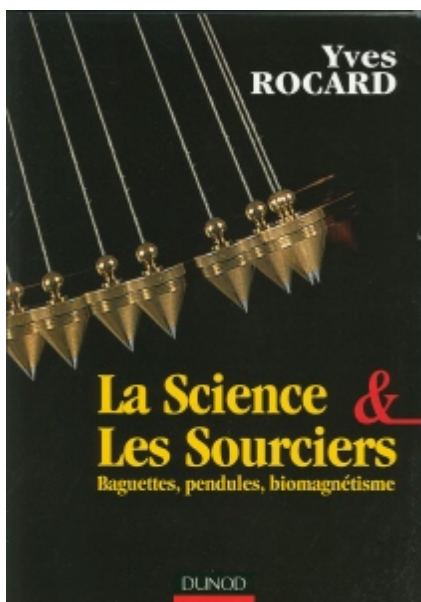
Jean-Pierre Perraud - Do you think, Professor, that there are lines of dowisers, diviners and magnetisers, just like there are lines of artists, doctors or lawyers?

Yves Rocard - You know, the magnetic sense is like the musical sense. A musician will always end up expressing his art. I think the same applies for individuals who have the magnetic sense, if not the magnetic gift. Yet it is not entirely inappropriate to talk about having a magnetic or dowsing gift. As I told you already, I have seen how magnetisers mummify fruit, meat or fish. This is an example of the many things I can not do, despite many attempts. I have also seen several pendulum dowisers search for missing people using photos or objects that belonged to them, and being able to locate these people within a very precise area. You surely know that the police often work with dowisers. Call the Ministry of Interior, and you will be surprised... As for the transmission of the gift from parents to children, there are actual families of diviners and healers. If one member, male or female, has the magnetic sense, it transmits to the descendants who present a natural disposition from an early age, and so on. This has always been so since the beginning of time. Besides, he who was best able to predict what was good or bad for the tribe was proclaimed sorcerer or chief of the tribe. You may know that the aristocrats and the kings of France from the Merovingian period were elected if they were able to cure scrofula simply by laying on of hands and touch, as do today's magnetisers. It is said that Louis XIV was the last king of France to stand the test of scrofula. Giscard d'Estaing would have been wise to heal scrofula, for perhaps his magnetic sense would have been better than his political and musical sense, especially when he plays the accordion.

Jean-Pierre Perraud - Do you therefore believe in the healer's power to heal?

Yves Rocard - Healers obviously continue to heal what they have always healed: the shingles, warts, burns, certain eczema, certain skin diseases, certain pains and most functional and nervous disorders. As for infectious and cancerous diseases, they cannot be healed through magnetiser's therapy, although they can sometimes be relieved. This is because the magnetic fields they emit are not strong enough. Moreover, apart from the famous **Priore** machine (Priore is an electrophysician from Bordeaux), few

experiments in France were made on the therapeutic effects of magnetic waves. Priore paid a heavy price for getting involved in medicine and therapeutics. Scientists and the College of Physicians were quick to react. Priore and his machine then disappeared. It is also true that this happened just after the war, a time that announced the reign of chemistry in all directions. I am firmly convinced that Priore discovered interesting properties of electromagnetic waves for therapeutics. Great scientists like Alfred Kastler and the English biologist Pantrezel who followed Priore in his experiments were convinced of this. Besides, why should it be otherwise, since we now know that electromagnetic waves are able to produce malignant tumors, heart or nerve disease, and even seizures of hysteria in those who receive them or are exposed to





them for too long? Television and small appliances are still alright but the problem becomes more serious when it comes to transformers and high voltage lines that create a phenomenon known as the corona effect. The corona effect starts near high voltage lines, that is to say, starting from 400,000 volts. Such electric power creates magnetic fields that ionise the air within a radius of several hundred metres so as to create disorders, discomfort, and in some cases, fatal diseases. The E.D.F. is aware of the side effects of high voltage lines but has so far never taken measures to neutralise them. Electromagnetic waves are like radio-active waves: in small doses they stimulate and heal; in heavy and high doses, they kill.

Jean-Pierre Perraud - What future do you see for magnetism in France?

Yves Rocard - You know, magnetism and magnetisers will survive, just like diviners and dowisers. If science could explain everything, and medicine could cure everything, there would be no need for magnetism and wave “sensors” but (and it is better so) this is not the case. Thirty years ago when I became interested in dowisers and magnetisers, my scientist colleagues thought that my senescence had taken over but you can see that I’m still going strong and I answer your questions. Magnetisers and dowisers exist because they are obtaining significant results, and they will exist as long as they continue obtaining such results.

Jean-Pierre Perraud - Professor, how is it possible that as a particle physicist with a rational mind who is known worldwide for his works on the atomic bomb, you found yourself, overnight, in the field of the spiritualists? Is there not something contradictory here?

Yves Rocard - Listen, the only revelations I had in my life have been given to me through logic and understanding, two faculties that have enabled me to understand phenomena as complex and tenuous as particle physics or the general laws of electromagnetism. There is nothing divine in this, or even spiritual. As for the power of diviners and magnetisers, I think I have answered your questions rationally.

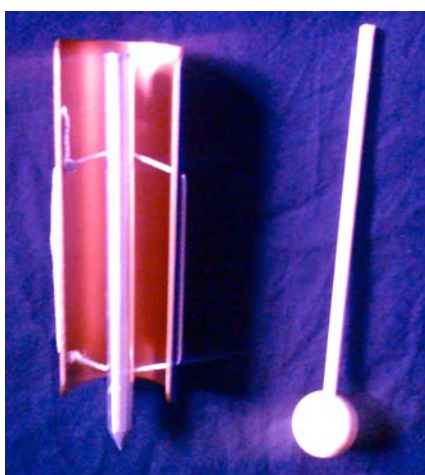
Jean-Pierre Perraud - And God in all of this?



Yves Rocard (with a smile) - Certainly the physical law of all physics or the greatest diviner.



# Diagnostic and magnetic alignment in less than 2 minutes. Who can do better?



**The universal Do is a diapason tuned to a resonant frequency of clean water, making it beneficial for our bodies. The frequency was chosen to be in the range of audible sound.**

Simply put the diapason on vibrating mode and then move it along a person's body to instantly establish a diagnosis. When passing in front of a healthy area, the sound is stable and it decreases significantly in front of weakened areas. This sound decrease is easily detectable and it signals an energy problem.

The fountain's ring emits a very precisely calibrated magnetic field to inform the water at an optimal frequency. When passing the ring from head to toe, all fluids contained in the body are instantly harmonised on a healthy frequency. This leads to an improved functioning of the chakras (see page 72).

Suffice to try again with the Universal Do to see the effect. A recent little problem will be completely harmonised. A chronic and older problem will be easy to recognise because the sound increases just a little on the affected area. Regular consumption of vitalised water will then be an added advantage. It is also possible to obtain comparable results by practicing the yoga of sound as it is taught by Alain BESSON.



## On the left:

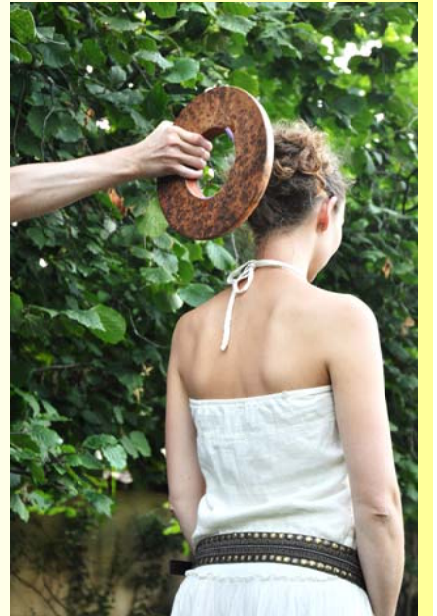
Blue bottle designed to invigorate water: the color of the glass selects high wavelengths; the wave form is equally beneficial. On top, a miniaturised magnetisation device, adaptable for wine or water bottles. This is sold separately.

## On the right:

Kit for the itinerant therapist: Cosmic Do and magnetic ring. The set comes with a velvet bag and a protective portable box.

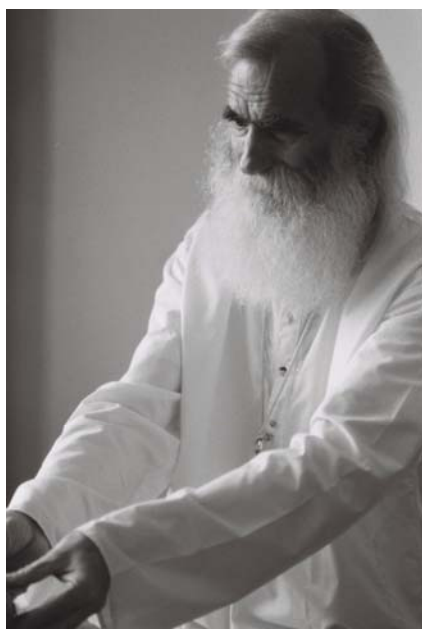






## Example of using the magnetic ring on a wrist

Case study of a Magnetic Fountain user: “An athlete fell off his bike. He harmed his wrist and his forearm as they violently hit the ground. I magnetised Pierre with the magnetic ring from head to toe, on the back of his body. I then magnetised his body from the front on the solar plexus, which is an extremely important and delicate area that is usually disrupted by physical or emotional shock. Always with the ring, I then magnetised the pained arm with the south pole, focusing on the painless areas. Subsequently, I passed a bit of the north pole on the painful area. I then placed the ring on a table and asked Pierre to put the palms of his hands on it. With diplomacy, I rectified his entire position from head to toe: feet flat on the floor, tibia perpendicular to the ground, back straight, aligned neck, and chin slightly tucked. A shock more or less disrupts the whole energy structure, and thus the posture. Without conveying any unnecessary mystery, the magnetiser must tactfully indicate the position that will facilitate the re-establishment of the overall energy flow. Once Pierre was then correctly positioned, I passed regular magnetic movements along his back, arms etc. If I told you he was almost completely relieved in just a few minutes, would you believe me? Through the global magnetic rebalancing, the blood that passed in his hands was magnetised and vitalised by the south magnetic flux. As it flowed, the magnetised blood facilitated both my action and the self-balancing.



The Magnetic Fountain helps in energy care but does not replace the necessary personalised cleansing work of the magnetiser. A magnetic field contains and conveys information. As Jacqueline BOUSQUET so aptly said, energetic medicine is in fact, informational medicine. If you know how to create an informed energy and project it from the palm of your right hand, it is possible to increase this transferring power by using the ring.

Hold the ring with the south side facing the area to be treated. Project a force, energy, an information, on the northern side of the ring. The information will be transmitted and amplified by the ring's field.

This only works if at the same time you connect your entire aura with that of the receiving person and especially with the universal energy field, the cosmo-telluric energy... however you wish to call it. For more details, please read Barbara Ann Brennan's book *Hands of light* and especially, meet a competent person.

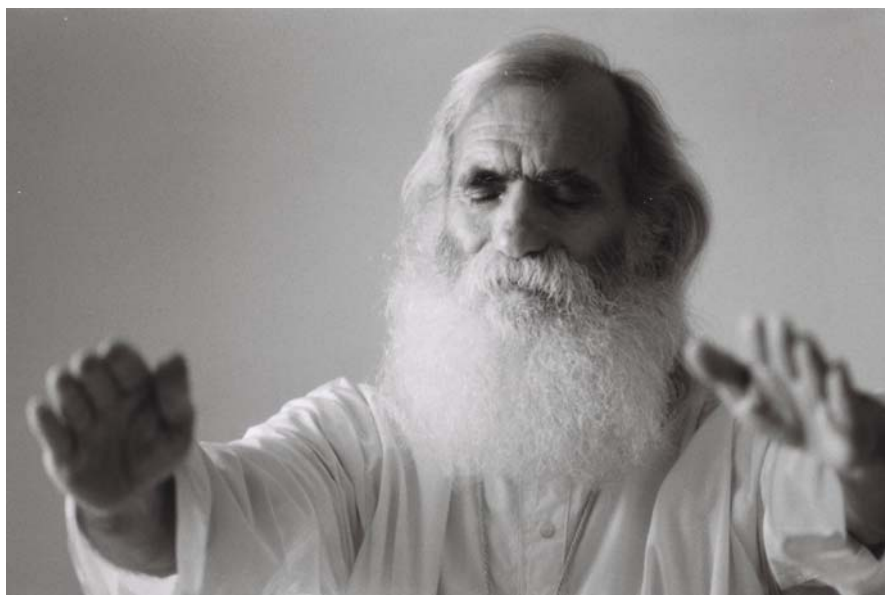
Everything cannot be transmitted through the written word.

To say that Man is created in the likeness of someone... or something immensely, infinitely large, powerful and eternal, is one way of presenting the connection between the small order, the microcosm, and the general order, the macrocosm. Let's recall: we all have a huge potential. The various formats that we undertake tend to obscure this miraculous ability that we all have within us.



In magnetism, this involves working on a micro/macro level, that is to say, on the painful area and on the whole body to cover the anatomical level. Then, on the person's global energy field and on the entire universal field. Subsequently, on the involutive energy level and the evolutionary level of consciousness. It is only from here that it is possible to descend into the consciousnesses of tissue, cells, atoms, etc. Consciousness rises as the energy descends on us.

To descend upon us, a part of our self must be connected to the ascending forces at the same time. To explore this method, you can consult Fabre Jollivet CASTELOT's book *Comment on devient alchimiste* (How to become an alchemist), and Eliphas Levi's *Secret de la Magie* (The Secret of Magic). Nassim HARAMEIN's conference which is available on [www.nouslesdieux.org](http://www.nouslesdieux.org) provides a synthesis regarding our "environmental universe" which is full of opportunities.



**Vladimir, yoga teacher and magnetiser.**  
(He is not the author of this text)

## The chakra system

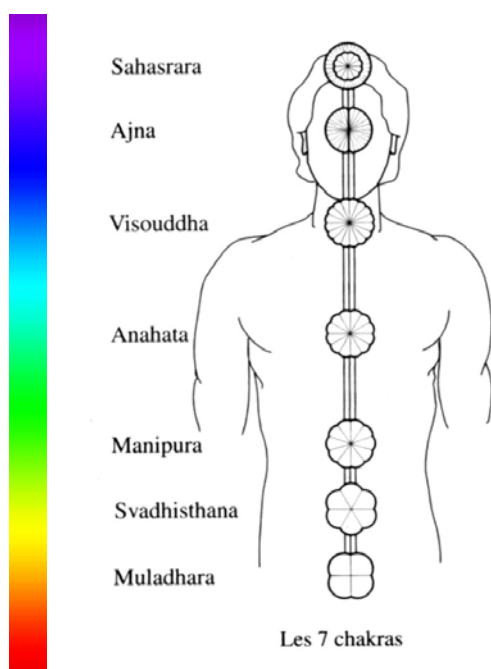
### Annex 9

"Where does the custom of representing angels with wings come from? ... Suffice a painting or a sculpture portraying a winged being for us know that it is an angel. Why these wings? What do they mean? Do angels really have wings? No, but this way of representing them comes from a very ancient

science concerning human beings and their subtle centres. The great Initiates of the past knew that in the back, at shoulder level, man possesses two powerful centres. These centres located in the etheric and astral bodies are capable of producing vortices that allow he who has been able to develop this, to move in space.

In Greek tradition, the God Hermes is represented with his wings at the heels because the heels also have a very important centre which relates to the power of being able to move in space. In reality, these subtle centres are within our bodies in large numbers. For example when you contemplate the sunrise, you absorb its light through a centre which is located just above the spleen.

The sun sends us its energy. It comes to us in the form of tiny luminous spheres. Our centre thus absorbs the sunlight and



divides it into seven colors; those of the prism. It then sends these seven rays into the body by dividing them as follows: the red and the orange go to the sexual organs, the yellow goes to the heart and lungs, the green goes to the stomach, the liver, the intestines and the kidneys, the blue goes to the throat and the nose, the purple goes to the head. Red can also strengthen the nervous system. A person who is nervously tired lacks of red and can improve his state by focusing on that colour.

The physiological function of the spleen is, as you know, to form red blood cells. It is therefore no wonder that the etheric centre of vitality is placed above it. To capture these globules of vitality that come from the sun, you must concentrate your thoughts on this centre in the morning, in order to enliven it and make it more receptive. This allows a better absorption of the sunlight and will improve your stamina.

Through observation and dissection with the help of increasingly sophisticated devices, anatomists who have for centuries dedicated themselves to studying the human body conceived a very detailed knowledge of its physical structure; but they are far from having found what the Initiates, through their foresight and spiritual experience, have discovered about man's subtle anatomy. One of the most impressive findings was discovered by the Initiates from India. It concerns the system of the seven chakras (meaning "wheel" in Sanskrit) or lotus. (...) We can find no trace of these spiritual centres in the physical body because they are located in the etheric body. Nevertheless, the organs of our body are under their influence."

Extract from *Man's subtle bodies and centers*, Omraam Mikhaël Aïvanhov  
Courtesy of Prosveta editions

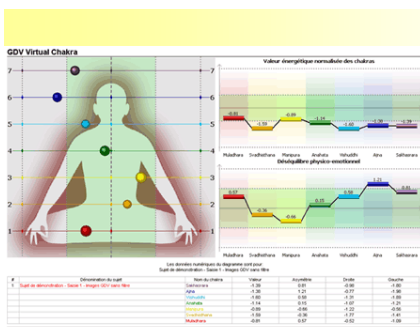
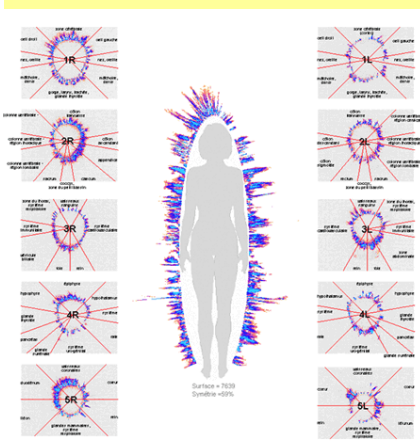
## Annex 10

# Kirlian and GDV

The technique of Kirlian photography has been greatly improved by Professor Konstantin KOROTKOV, who teaches at the State University of Information Technologies of St. Petersburg. He is also president of the International Union of Applied Medical Bio-electrography, authors of 200 scientific articles and 12 patents. Prof. KOROTKOV developed the GDV technique (Gas Discharge Visualisation) which is approved as a medical device in Russia since 2003, probably because it combines accuracy and low costs.

This device makes advanced Kirlian photographs of the ten fingertips and then processes the images obtained through a computer system. Each photo is analysed following a method which is similar to iridology, and they are then correlated with the whole. The computer processing allows an accurate diagnosis of many organs, viewable in a geometric recomposition of the global energy. The extrapolation of the data allows an accurate assessment of the Chakras' functioning level and special software gives a realistic overview, confirmed by those who are gifted with extended perceptual faculties.

For more information, please visit: <http://www.gdvonline.fr>





# ORMUS, DNA and quantum biology

[www.subtleenergies.com](http://www.subtleenergies.com)

ORMUS are precious metal elements indicating a state of matter hitherto unknown to science. They possess extraordinary physical properties: invisibility, teleportation, superconductivity, the ability to inflect space-time... Biologically, ORMUS are very interesting mineral nutrients for agriculture and health, including cancer treatment. They provide characteristics which are reminiscent of the alchemists' "white gold", the philosopher's stone or the Biblical manna...

In Arizona in the 1970s, a wealthy cotton farmer named David Hudson cultivated volcanic soil, known for possessing rare properties and containing precious metals. He decided to order a full analysis. Stunned, the laboratory confirmed the presence of unknown elements. To everyone's surprise, the spectral study revealed the presence of precious metals in an unknown form! Having considerable financial resources, Hudson decided to push the investigations further. The results are detailed in a filed patent. (...) A new chapter in physics, chemistry and biology is being opened. Other researchers, following Hudson's footsteps, say they have detected it in most natural waters, the highest concentrations being found in seawater, especially in the Dead Sea. One researcher even claims to have found some in the air. (...)

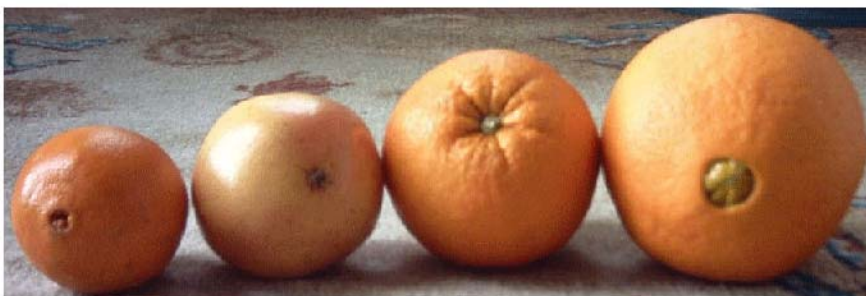
## Modern Science and Alchemy

According to Barry Carter, who is an ORMUS passionate since 1989 and travels the world to make it known, there even exist traces of it among the Mesopotamians and the Egyptians. It seems that the ancient Mesopotamians called it shem-an-na, while the Alexandrians venerated it as a gift from Paradise. Later, chemists such as Nicolas Flamel called it the Philosophers Stone. In all periods of history, the sacred "projection powder" was deemed to possess extraordinary levitation, transmutation and teleportation powers. They said it produced a bright shining light and deadly rays, while being the key to an active physical longevity.

## Elevated consciousness, body of light

We also know that in their monatomic high-spin state (rotation of the nucleus), gold and platinum can activate the endocrinal glandular system to the point of bringing consciousness, perception and aptitude to extraordinary levels. In this regard, it is estimated that gold dust at high-spin has a definite effect on the pineal gland, increasing the production of melatonin.

Likewise, monatomic iridium powder has a similar effect on the production of serotonin in the pituitary gland and can reactivate "junk DNA" as well as the areas of the brain that are inadequately exploited.



De gauche à droite : orange de supermarché, pamplemousse de supermarché, orange en provenance d'un arbre traité à l'Ormus pendant 2 ans, orange en provenance d'un arbre traité à l'Ormus pendant 4 ans.

Image on the left: *From left to right: a supermarket orange, a supermarket grapefruit, an orange from a tree that has been treated with Ormus for 2 years, an orange from a tree that has been treated with Ormus for 4 years.*

## The Biology of ORMUS

The biology of these materials falls into the quantum approach of life. From this perspective, the holistic properties of life are explicable only by quantum coherence. In other words, the seemingly random activity of biological molecules (according to classical thermodynamics) is in fact governed by the same quantum principles as those that govern the functioning of a laser. This radically new perspective on biology was initiated by Dr. Mae-Wan Ho. Recent works have opened up promising prospects for quantum biology.

While a small portion of the DNA works by encoding proteins, the majority (qualified as junk DNA) operates independently of the chemistry to inform the organism's "quantum" field. In addition, a number of publications on superconductivity in living organisms would confirm Hudson's speculations about the remedial action of ORMUS on DNA.

One day, Hudson's uncle, who is interested in alchemy, suggested a link with "white gold" as described by some alchemists, a powder with healing properties known for prolonging life. Intrigued, Hudson dispensed an ORMUS preparation to a dog with cancer and piroplasmiasis. The animal recovered and human volunteers lent themselves to the experiment with positive results. Hudson distributed a few samples to doctors who prescribed them to patients with terminal illnesses. The remarkable healings will illustrate Hudson's future conferences with the help of graphic material.

Source:

**"ORMUS ELEMENTS,  
A MANNA FOR HUMANITY"**  
published in Nexus N°50 MAY-JUNE 2007.

The full article is available in pdf on the [www.nexus.fr](http://www.nexus.fr) website. We thank the Nexus editorial staff for creating a real news magazine and for granting us permission to reproduce an extract.



Alchemy originally meant "the work of time on matter". This is why alchemists have learned to ripen metals by imitating nature. The Ormus are metal compound transformation phases. They represent a kinetic phase in which the accumulated energy is manifested both as modified spin and trans-formation force: transition from one form to another. Biological processes do not remain insensitive to such a wonderful phenomenon.



**The Ormus Magnetic Fountain contains Ormus compounds  
and transfers particularly beneficial information to water**



Partial reproduction

of an appendix in Marcel VIOLET's book:

# “The secret of the Patriarchs”

Available on [www.fontainemagnetique.fr](http://www.fontainemagnetique.fr)

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*Extrait du Bulletin de l'Académie Nationale  
de Médecine*

122<sup>e</sup> année, troisième série, t. 142, n<sup>o</sup> 23 et 24  
Séances des 1<sup>er</sup> et 8 juillet 1958, p. 624 et 625

## RAPPORTS

### SUR LE TRAITEMENT ELECTRO-VIBRATOIRE DES EAUX

par M. TANON

(Au nom de la Commission de l'Alimentation)

Le traitement a fait l'objet d'un rapport de la Commission, à la séance du 29 janvier 1957, à la demande d'examen de M. le sous-secrétaire d'Etat à la Santé publique. L'auteur du procédé, M. Violet, avait remarqué, en tenant compte des travaux de Lakhowsky en 1921 et de ceux de Barthélemy en 1944, sur l'action des circuits oscillants, que les émissions vibratoires utilisées se plaçaient au-delà des rayons X et de la radioactivité, en dépendance peut-être d'actions cosmiques. L'eau dans laquelle on introduit des colloïdes métalliques provenant du métal qui forme l'électrode, acquiert une qualité d'excitant des actions cellulaires, comme aussi celle des médicaments ingérés pendant la période d'utilisation de ces eaux.

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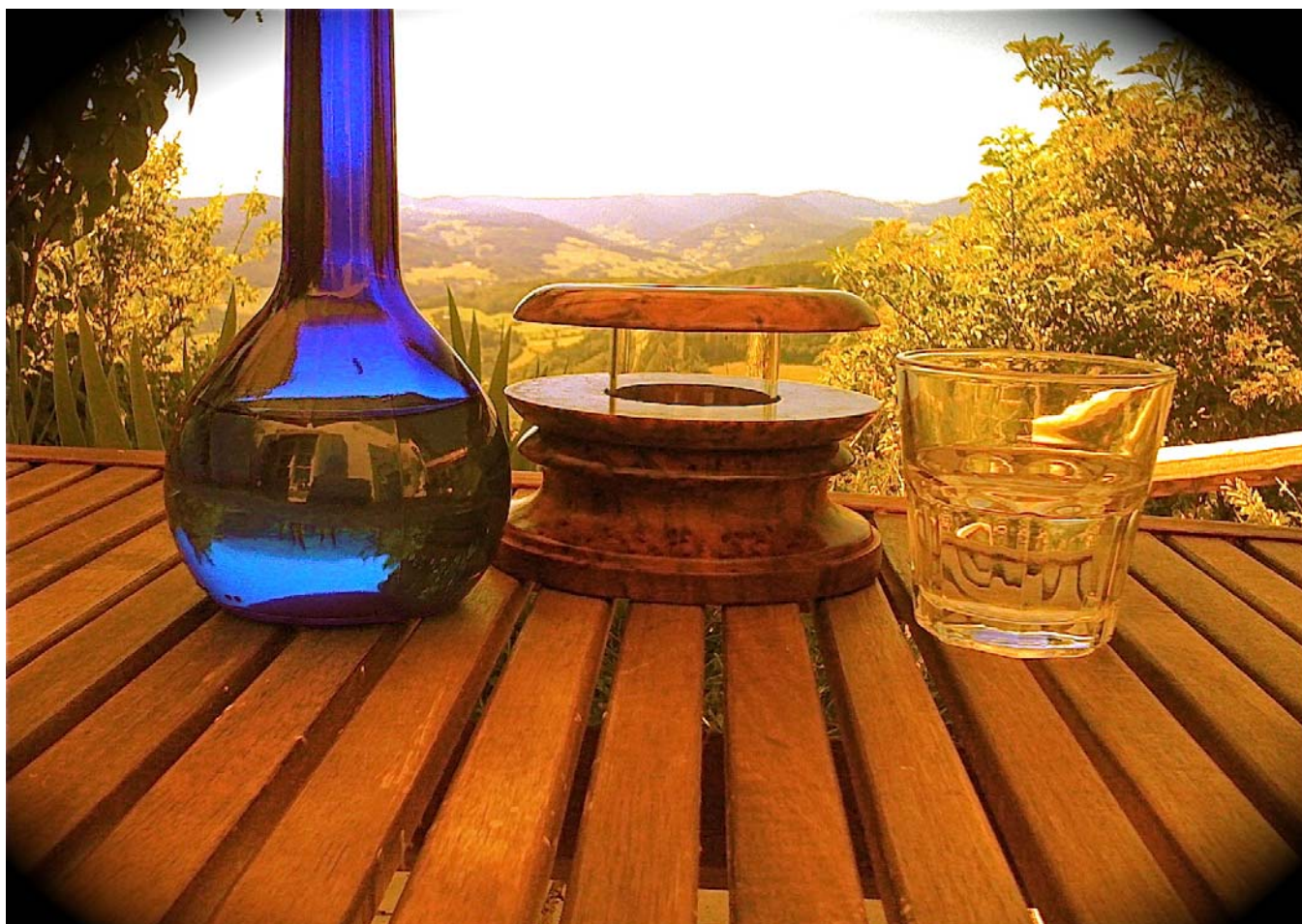
Les expériences sur les animaux ou sur l'homme, surtout les convalescents, avaient été faites par divers médecins, soit chez leurs clients, soit dans les hôpitaux, avaient montré qu'une dose de 25 cm<sup>3</sup> trois fois par jour provoquait une diminution de la fatigue, un relèvement de l'état général.

Notre Commission, après examen du dossier, avait reconnu que par ce procédé il était possible que des éléments favorables à la vie cellulaire puissent être apportés et a reconnu la valeur de l'eau ainsi traitée. En même temps l'auteur demandait l'autorisation pour les vins.

L'Académie avait donné un avis favorable pour l'emploi de l'eau, mais défavorable pour les vins, jusqu'à justification expérimentale et étude approfondie. En conséquence de cet avis, M. Violet n'a pu obtenir de visa.

Actuellement, il demande un nouvel avis favorable. Le Conseil Supérieur d'Hygiène n'ayant pas homologué auparavant son appareil, il n'envisage que l'eau dite électro-vibratoire.

L'avis ayant été favorable, il semblerait qu'il fût inutile de revenir sur la question. Cependant M. Violet a tenu à fournir de nouvelles preuves de l'action énergétique de



l'eau ainsi traitée, et dont l'action excitante des fonctions cellulaires semble réelle.

Il apporte des rapports d'expériences faites et qui avaient été demandées par lettre du 14 février, du Service central de la Pharmacie (Ministère de la Santé publique) et des analyses biochimiques sur les animaux bien portants ou déficients.

Il fournit à cet effet quelques lettres de médecins de l'hôpital de Roubaix, du Docteur Arthur Vernes, de l'Institut prophylactique ; celui-ci indiquant que certains sujets lui ont signalé avoir ressenti une amélioration de leur état ; et de Mme Randoïn, à la Société Scientifique d'Hygiène Alimentaire. Notre collègue a entrepris l'étude biologique de l'eau préparée par le procédé Violet portant sur sa non-toxicité sur les animaux déficients. Elle a, d'une part, donné à de jeunes rats blancs de l'eau électro-vibratoire ; de l'autre de l'eau stérilisée, avec le même régime. Pendant cinq semaines, ils n'ont reçu aucune autre boisson.

Sans entrer trop dans le détail et la description de ces expériences, on constate que la croissance des rats qui ont eu de l'eau Violet est un peu supérieure à celles des autres ; que cette eau paraît améliorer le rendement de croissance.

Pour l'activité biologique des animaux déficients, il semble (par d'autres expériences faites), que pour un temps suffisamment prolongé, l'eau spéciale Violet ajoutée à un régime de base incomplet et mal équilibré, soit susceptible d'assurer une croissance animale meilleure.

M. Violet a fourni une description succincte de son appareil et de son fonctionnement. On ne peut que renvoyer à cette pièce qui est technique, les ondes fondamentales de fréquence  $f$  plus ou moins  $f'$  et  $f$  moins  $f'$  viennent se superposer avec des harmoniques provenant tant de la source alternative que du condensateur tournant.

La Commission ayant pris connaissance de tous ces textes, considère qu'il y a lieu de renouveler l'avis favorable pour l'eau Violet. Celle-ci ne semble pas pouvoir être considérée comme un médicament, son usage ne comporte aucune contre-indication. Elle pourrait être justiciable du visa H et l'appareil de production pourrait être homologué.

Les conclusions de la Commission sont adoptées à l'unanimité.





If you want to know more about these unrecognised scientific works which can be extremely beneficial for everyone, here are two quality publications: Nexus and Morpheus. Some works are hidden because they upset the commonly accepted concepts. Yet it is precisely these works which bring renewal and change.

And for the press... do you prefer it dead or vitalised?

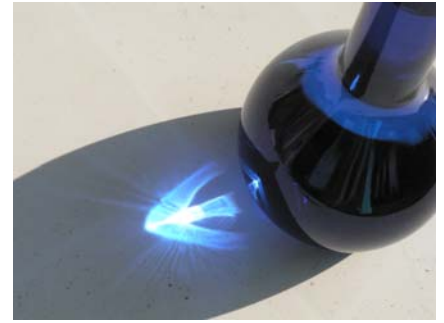
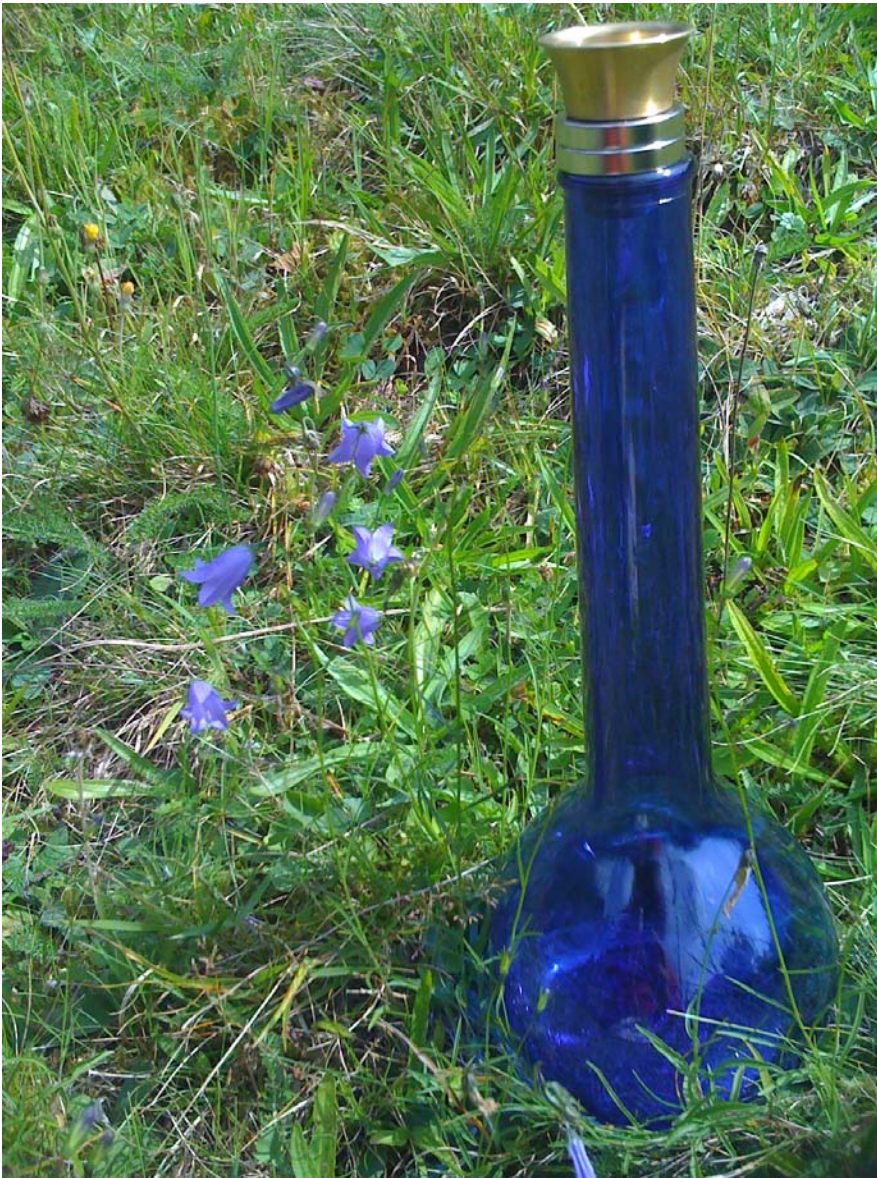


[www.nexus.fr](http://www.nexus.fr)

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And what if the incredible Egyptian civilisation possessed sciences which are unknown to us?

It was Patrick FLANAGAN who first said that the pyramid of Cheops is an energetic device. He is credited with over 300 inventions and was named Scientist of the Year in 1997 by the International Association for New Science. The word 'pyramid' means "fire in the middle".

"Alchemy's great secret is the so-called 'secret fire', something that can, over time, dissolve gold into a white powder. It is said that the process is completed by this 'fire' without human intervention. It also said that the process is very simple. The secret fire which dissolves gold (to make Ormus) consists of an energy that is emitted by a pyramidal shape."

Where are the hidden traces of such a science? Apparently (see diagram on the left) the knowledge of elders rather addresses those who use the right part of the brain...

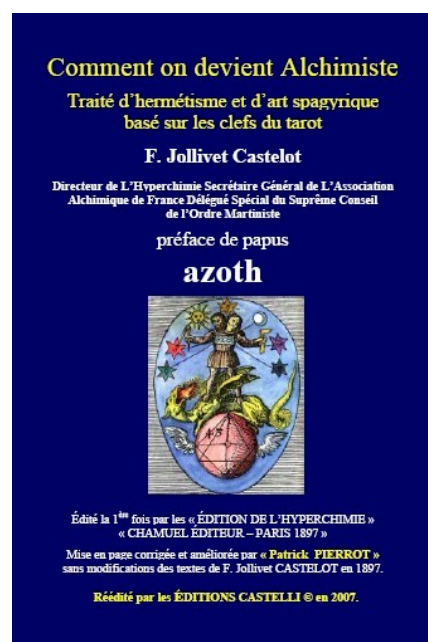


terrestrial organism's waste.

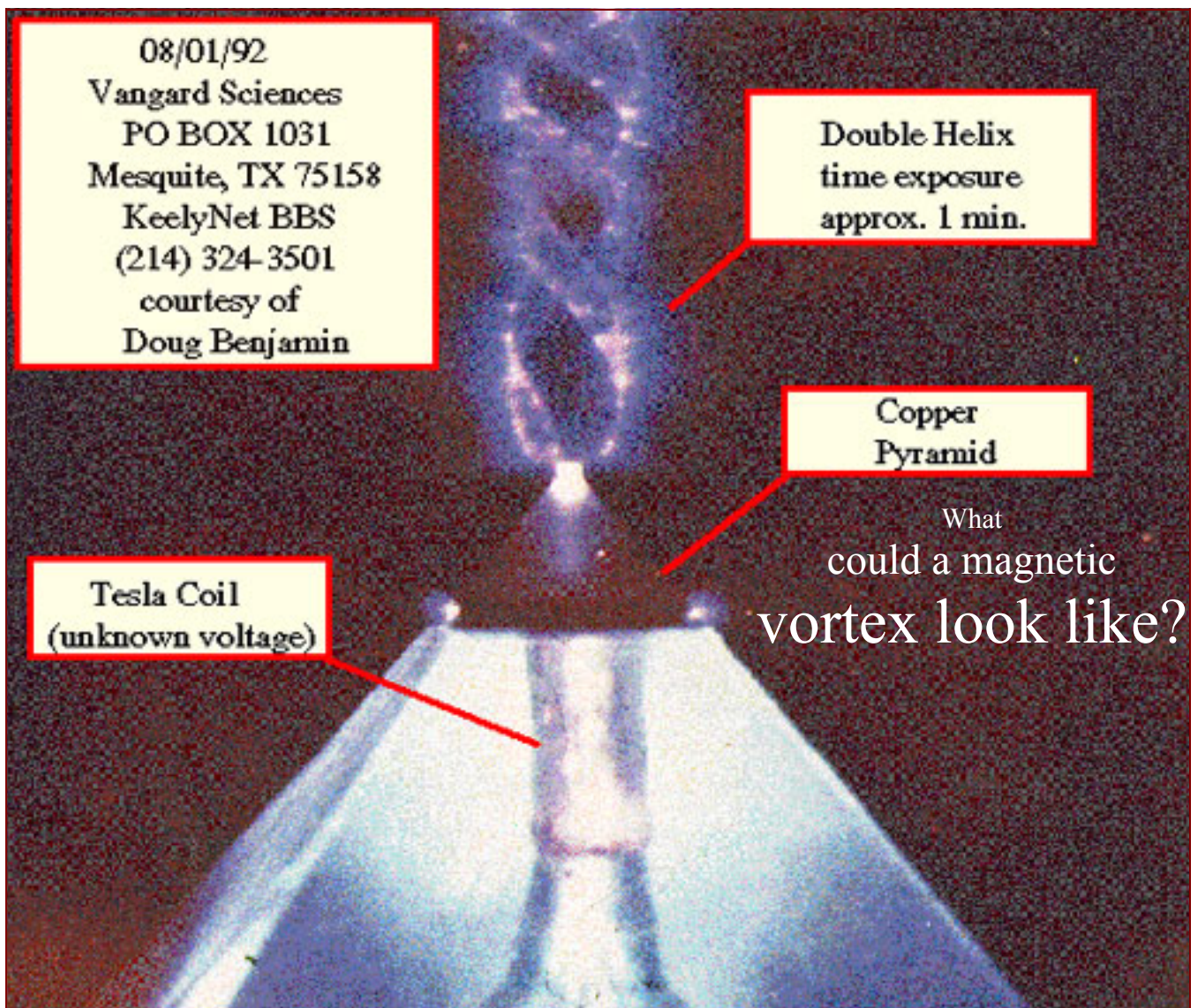
Taking river water for wet operations is therefore the same as taking a used and contaminated substance. Alchemists therefore employ dew for this purpose as it is the Earth's true arterial blood. However, it is so charged with energy and so active that the first solar rays evaporate it instantly. Rainwater was reserved for washing vases destined for containing spirits."

From the foreword by Dr. Papus in F. Jolly Castelot's book

*How to become an Alchemist*







Kirlian photograph of a pyramid using a Tesla device, by Mary and Dean Hardy (Michigan) in 1979. The Tesla tower was built using the same principles as the pyramid of Cheops.

The difference between a laboratory and a true scholar is that the scholar is in direct, deep and personal contact with nature. A true scholar is therefore gifted with a wider consciousness and can therefore advance in the knowledge of natural laws. He who considers nature with humility and respect, receives a lot back. True scholars have a philosophy and upon a closer look, it becomes evident that they all have the same philosophy because their thought merges with nature's order.

During his conference in 1961, our friend and benefactor Marcel VIOLET made a capital remark. He explained that his work at the time was constrained by the fact that he did not dispose of measuring instruments able to accurately reflect the new forces and processes he discovered. But his avant-garde spirit was ahead of his time. He said that the time would come when these famous instruments are available, which, he said, would open an exponential technological progress in the various disciplines. Indeed, we have flown over biology and botany together and have moved from vortices to quantum biology, simply by following the thread of life. We now know what water is best to drink and why... We will have made incredible progress when this knowledge, which is finally simple enough, will become known and applied. Similarly, we can expect a profound renewal in the industrial sector as the works of Viktor SCHAUBERGER and Nikola TESLA become better known. As evidenced in Nexus and Morpheus, our recent history is replete with important breakthroughs that are misunderstood. Researchers discover natural forces, laws, processes. Society must then discover these researchers and accept their work. It is important to note that each one of us can play a role in this fascinating and necessary task.



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# *Magnetic Fountain*



Child's play!





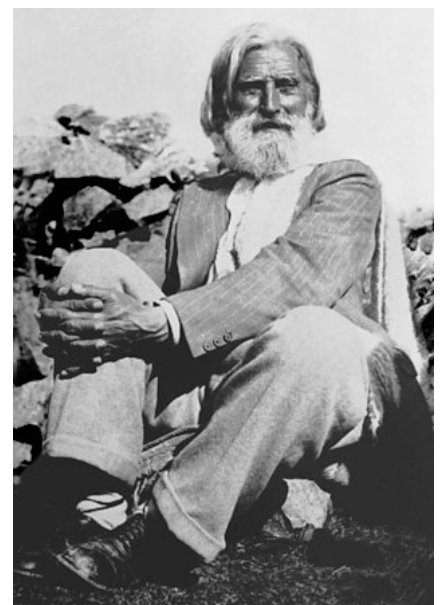


## Artistic Vitalisation

Regular consumption of vitalised water significantly improves the quality of artistic achievement. Alain BESSON's testimony (page 48) is already eloquent but here are some more examples. A painter who does not use black completely changed styles after a few weeks of using the [Magnetic Fountain](#). Another user, who plays the piano, suddenly started composing. Creation is the essence of life and the [Magnetic Fountain](#) merely facilitates its users' natural ability to express their gift. All the credit goes to them. To conclude, let's leave the last words to a great Artist:

*"In the physical world, music is essential to establish order in disorganised matter. The physical world is disorganised. Through music, matter vibrates harmoniously. (...) Music is a power. With musicality in feelings, in thoughts, in actions, anything is possible."*

Peter DEUNOV  
Violinist & theologian  
*Au cœur de la santé*, p 147





# *Personal Notes*

*Before using the Magnetic Fountain*

# *Personal Notes*

*After using the Magnetic Fountain*



A serene landscape photograph of a river at sunset. The sun is low on the right side, casting a warm, golden glow across the water and the sky. A dense forest of evergreen trees lines the far bank. In the foreground, a cluster of large, green, pointed leaves, possibly water lilies, is in focus. The overall mood is peaceful and contemplative.

Foreword by **David Bellamy**

# Hidden Nature

The Startling Insights of Viktor Schauberger

Alick Bartholomew





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# Foreword

Water is the commonest substance on the face of the Earth, yet we really know very little about this essential source of life. We do know that without it there would be no life — indeed there would be little in the way of chemical reaction, for water is the universal catalyst. Water is also our potential nemesis, for today it is widely agreed that if there is another world war, it will be waged over this precious resource. Water in a state fit enough for human consumption or for succouring the life cycle of the brown trout is now in short supply and its availability is diminishing every day.

Before Austria had stripped her mountains of all her old growth forests, Viktor Schauburger, a forester, observing how a trout could maintain its station in the midst of a turbulent stream, discovered the secret of living water. Distilled from the sea and leaving most of its burden of salt behind, it droppeth as the gentle rain from heaven, taking up kinetic energy as it makes its way back to ordnance datum (standard sea level), itself controlled by the balance of the global greenhouse.

En route this living water absorbs minerals from both soil and bedrock sufficient to nurture the pulse of life itself, tiny herbs, some full of the power of healing, and the natural vegetation that generates organic soil. The trees, reaching up to the Sun, power houses for transforming energy, are driven by living water, ameliorating the climate near the ground, controlling erosion and helping to maintain the life-giving water cycle.

If this cycle gets out of balance in any way, the consequences are dire, as insurance companies are now discovering. Drought, floods, winds and wild fire out of control, and perhaps worst of all, eutrophication, the clever name for too many nutrients choking the very arteries through which living water used to meander its self-cleansing way down to the sea.

There is much in Schauburger's philosophy that gets up the noses of the science that sees only financial profit at the end of their glass telescope of knowledge. Alick Bartholomew is to be congratulated for bringing Schauburger's vision into focus in this book at the most opportune time. Wave power is beginning to come on stream



with the promise of base load electricity cheap enough to split, not the polluting atom, but the water molecule, into oxygen and hydrogen — the latter to fuel the much discussed non-polluting, fuel cell-based, hydrogen economy.

Is this a wise strategy? In the absence of Schauburger as my mentor I sat beside the stream in my garden with Tornado jets making warlike passes overhead, and watched a trout enjoying what are perhaps the only real human rights, peace and access to living water.

David  
Bedburn, February 2003

Bellamy,

# Introduction

'I no longer own my own mind. I don't own even my own thoughts. After all I've done, finally there is nothing left. I am a man with no future.'<sup>1</sup> These were the words of Viktor Schaubberger, an Austrian naturalist, the pioneer of Eco-technology (working with Nature) who had devoted his life to demonstrating how the desecration of our environment proceeds directly from our complete ignorance of how Nature works at the energy level. His controversial credo was that humanity must begin, with humility, to study Nature and learn from it, rather than try to correct it. We have put the future of humanity at risk by the way we produce and consume energy. His aim was to liberate people from dependence on inefficient and polluting centralized energy resources and generation of power.

Viktor was communicating his distress to his son, Walter, on the plane home from Texas after a nightmare of exhausting cross-examination to extract the secrets of the devices he had developed which demonstrated free energy, anti-gravity and fuel-less flight. He died five days later on September 25, 1958, in Linz, Austria, of a broken heart. Father and son had embarked on an ambitious, but ill-conceived, scheme hatched by an American consortium<sup>1</sup> which probably had CIA and atomic energy connections, in order to persuade him to give up the keys to his mysterious research (see Chapter 18). Schaubberger had in 1944, under threat of death, been forced to develop a flying saucer programme for the Third Reich, the secret weapon which, had it been initiated two years earlier, might well have tipped the war's balance in Germany's favour.

Schaubberger's inspiration came from studying the water in fast-flowing streams in the unspoilt Austrian Alps, where he worked as a forest warden. From his astute observations he became a self-trained engineer, eventually learning, through the implosive, or centripetally moving, processes that Nature uses, how to release energy 127 times more powerful than conventional power generation. By 1937 he had developed an implosion motor that produced a thrust of 1,290m/sec, or about four times the speed of sound. In 1941 Air Marshall Udet asked him to help solve the growing energy crisis in Germany; however the research came to an end when Udet died and the plant was



subsequently destroyed by Allied bombing. When in 1943 Heinrich Himmler directed Viktor to develop a new secret weapon system with a team of engineer prisoners-of-war, he had no choice but to comply.

The critical tests came just before the end of the European war. A flying disc was launched in Prague on February 19, 1945, which rose to an altitude of 15,000 metres in three minutes and attained a forward speed of 2,200kph.<sup>2</sup> An improved version was to be launched on May 6, the day the American forces arrived at the Leonstein factory in Upper Austria. Facing the collapse of the German armies, Field Marshal Keitel ordered all the prototypes to be destroyed.

Schauberger had moved from his apartment in Vienna to the comparative safety of Leonstein. Meanwhile the Russians pushed in from the East and captured Vienna; a special Soviet investigation team ransacked his apartment, taking away vital papers and models, and then blew it up.

The Allies seemed to be well aware of Schauburger's part in developing this secret weapon. At the end of hostilities, an American Special Forces team seized all the equipment from his Leonstein home and put him under 'protective U.S. custody' for nine months' debriefing. It seems likely that they could not fathom his strange science, for they let him go, although this group, detailed to enlist as many of the front-line German scientists as possible, took back scores of other 'enemy' scientists to give a vital boost to American industrial and military research. They forbade him from pursuing 'atomic energy' research, which would have left him free to follow his dream of fuel-less power.

For the following nine years Viktor could not continue his implosion research because the high quality materials needed for his very advanced equipment were beyond his means, and he had no sponsors. In addition, he may have been haunted by remorse for having been forced by the German SS to design machines of war. Schauburger was essentially a man of peace who, above all, wanted to help humanity become free; so he turned his attention to making the Earth more fertile, developing experimental copper ploughshares.

## Levitation and resistantless movement

This strange life path had started on his return to civilian life after the First World War, when Viktor Schauburger went to work in the mountains. His experiences of unspoilt Nature were life-changing.

One such that would set him on a lonely course to change the course of human life for ever, he describes graphically:

It was spawning time one early spring moonlit night. I was sitting beside a waterfall waiting to catch a dangerous fish poacher. Something then happened so quickly; I was hardly able to grasp it. The moonlight falling onto the crystal clear water picked up every movement of a large shoal of fish gathered in the pool. Suddenly they dispersed as a big fish swam into the pool from below, preparing to confront the waterfall. It seemed as though it wanted to scatter the other trout as it quickly darted to and fro in great twisting movements.

Then, just as suddenly the large trout disappeared into the huge jet of falling water that shone like molten metal. I could see it fleetingly, under a conically shaped stream of water, dancing in a wild, spinning movement, which at that moment didn't make sense to me. When it stopped spinning it seemed then to float motionlessly upward. On reaching the lower curve of the waterfall it tumbled over and with a strong push reached behind the upper curve of the fall. There, in the fast flowing water, and with a strong movement of the tail, it disappeared.

Deep in thought, I filled my pipe, and as I wended my way homewards, smoked it to the finish. Often subsequently, I witnessed the same sequence of behaviour of a trout leaping up a high waterfall. After decades of similar observations that manifested like rows of pearls on a chain, I should be able to come to some conclusion. But no scientist has been able to explain the phenomenon to me.

With the right lighting, it is possible to see the path of levitational currents as an empty tube within the veil of a waterfall. It is similar to the tunnel in the middle of a circulating vortex of water plunging down a drain, which brings up a gurgling sound. This downwardly-directed whirlpool drags everything with increasing suction with it into the depths. If you can imagine this whirlpool or water-cyclone operating vertically, you get the picture of how the levitational current works and you can see how the trout appears to be floating upward in the axis of fall.<sup>3</sup>

## INTRODUCTION

Viktor used to spend hours watching fish in the streams. He was fascinated by how the trout could lie motionless in the strongest current and then, if alarmed, without warning, would dart upstream rather than be carried down with the flow. Having learned from his family about the importance of temperature on the energy potential of water, he did an experiment. He had colleagues heat up 100 litres of water that, on his signal, they poured into the fast-flowing mountain stream some 150 metres upstream from where he stood. Viktor noted how the trout he had been observing became agitated, and soon was unable to hold its station in the fast flowing stream, thrashing its tail fins to no avail. The minute, but nevertheless abnormal, rise in the average temperature of the water and the chaoticized flow that resulted, had interfered with the trout's hovering ability. Viktor searched the textbooks in vain for an explanation of this marvel.

He would often quote these experiences with the trout as having the most influence on developing his ideas, for temperature and motion were the foundations of his theories and discoveries. He subsequently developed a generator to produce energy directly from air and water, naming it the 'trout turbine' in honour of his mentor, though it was later called the 'implosion machine.'

## The non-conformist

Viktor Schauburger was discredited and criticized by 'the experts,' as pioneers have been in the past, from Galileo to Max Planck. He insisted that we have betrayed our calling and our heritage, by usurping the role of God and trashing our environment. He saw that we were hell-bent on a path of self-destruction, and predicted that, within a generation, our climate would become more hostile, our food sources would dry up, there would be no healthy water, and illness, misery and violence would predominate.

Where have conventional scientists gone astray? By not observing carefully how Nature works. If they did, they would be able to formulate her laws, as Schauburger has done, and then comply with them, so that human society could come into harmony with our environment. As he so often said, 'Comprehend and Copy Nature.' Instead, modern scientists believe we are above Nature and are free to exploit the Earth's resources without consequence.

Schauburger spelled out clearly exactly where we have gone wrong with our technology. How can we start to put things right?

HIDDEN NATURE



Certainly by a complete reversal of the way we do things. This can involve only a sea change in the way we regard our lives, and a personal commitment to help bring about a major shift in our society. Only through sufficient numbers joining together in common cause can these changes begin.

He criticized mainline science for its arrogance and herd instincts. He also castigated scientists for their blinkeredness, their inability to see the connections between things. Schauberger did not blame the political hierarchy for the world's woes, as we often do today. He believed that political leaders are basically opportunists and pawns of the system. It was his own adversaries, the 'techno-academic' scientists as he called them, whom he held to blame for the dangerous state of the World.<sup>4</sup>

Visionaries and pioneers are inevitably a challenge to the establishment in whatever field, for they pose an imagined threat to the interests of those who benefit from the status quo. The degree of vilification seems to depend on the level of rewards at stake. Thus science, as perhaps the most exclusive and arrogant of disciplines, has done so much throughout history to undermine great innovators like Copernicus, Kepler and Galileo to, in our times, the biological pioneers James Lovelock, Rupert Sheldrake and Mae-Wan Ho.

Despite, or perhaps because of, his interrupted education, Viktor retained a great thirst for knowledge. His wife found domestically disruptive his tendency to stay up all night, pouring over books of every kind, especially the more esoteric variety. There was no question that Viktor felt he had a calling. This was evident from the fact that often he seemed to write in a trance-like state, returning to normal consciousness quite surprised by what he had just written!

Schauberger was a man of unshakeable self-confidence and inner conviction about the viability of his theories, and unsurprisingly had a lifelong battle with orthodoxy. Callum Coats describes how on one occasion during the Nazi era, good fortune saved his life from being taken in a sinister way.<sup>5</sup> He did, however gain important support. This was inevitably from the few scientists who were not swayed by greed or jealousy and were of more independent mind. One was the Swiss Professor Werner Zimmerman, a well-known social reformer who published articles by Viktor in his ecologically oriented magazine *Tau*. Another was Felix Ehrenhaft, professor of physics at the University of Vienna, who helped with Viktor's calculations for his implosion machines. A third very

loyal friend was Professor Philipp Forchheimer, a hydrologist of world repute.

Most people have heard of Viktor Schauburger only in connection with his inspired ideas about water or of the energy-saving machines that harnessed the enormous power encapsulated in lively water. They were, indeed, so fundamental and important as to justify his reputation as an ecological pioneer. However, as we are concerned with the broader challenge of restoring the damage wrought by humanity on the Earth, we shall need to present Schauburger's larger worldview of how Nature works.

Walter Schauburger, who unlike his father, had a formal education in science and was, for a time, a university lecturer in physics, worked hard to make Viktor's ideas more accessible to mainstream science. After he did a lecture tour in 1950 at a number of England's top universities, some of the distinguished scientists were asked what they thought of the Schauburger physics. While they agreed that the theories were quite convincing, the problem, it appeared, was that 'it would mean rewriting all the textbooks in the world.'<sup>6</sup>

## An alternative worldview

Viktor Schauburger suffered much from the vindictiveness of the scientific establishment towards him. Nevertheless, his constant complaints about them obscure his principal message, which is far more important than academic arrogance per se. This is that our whole culture is completely under the thrall of a materialistic worldview or way of seeing; we are caught in the excitement of apparently being free to do anything we want, and by the glamour of possessing lots of riches and distractions. Our science is but the product of this worldview, as is our philosophy and education, our religion, our politics and our medicine. You don't need to subscribe to conspiracy theories to realize that all aspects of our society suffer from a grand delusion that is contributing to the breakdown of our world order and to the collapse of our ecosystems.

The real issue is that the intellectual movement of the late seventeenth century, the Enlightenment, and its equivalent in science, Rationalism, have caused a great schism in human society. The philosopher Rene Descartes (famous for his 'I think therefore I am') has a lot to answer for. That movement put man on a pedestal, introduced the idea of humanity being apart from Nature and started to

interpret all natural phenomena by a process of deduction. The effect has been a separation of thinking from experience, of head from heart. Because of the dominance of scientific determinism in our culture, the more intuitive way of knowledge is considered as suspect, but there is a new awakening taking place at all levels of society of people wanting to get in touch with their intuition, who feel that rationalism is in fact the Great Delusion.

We have experiences every day that fall outside the accepted conventions of reality; like little synchronicities, intuiting events, the sensing of different qualities of 'atmosphere' as emanations from people, situations or places, the power of thought over action, communication with a household pet. If we share these with like-minded friends we feel like conspirators discussing something taboo that the thought police might catch. At best these phenomena might be labelled woolly, like 'psychic' experiences. We are lost because there is no system or structure to 'make sense' of an important part of our lives. They are not part of conventional wisdom.

Viktor Schauberger was one of the first to put in a scientifically verifiable framework a study of natural processes set free from the constraints of rationalism. He has widened our understanding of our place in the world by describing a worldview of a natural science that includes these experiences without recourse to scientific, religious or philosophical dogma. By understanding how Nature works, we can begin to relate our experiences to a much wider and more exciting worldview. Rachel Carson, who is credited with having initiated the environmental movement with her book *Silent Spring*, was a brave woman for taking on the multinational corporations. Schauberger is all the braver for taking on our conventional worldview.

There must be a fundamental change in the way we see the world (including our environmental policies), before change is possible. Have Viktor's warnings been vindicated? It is over 45 years since his untimely death, and much of what he prophesied has come to pass even earlier than he foresaw. There was some hope before September 11, 2001, that environmental awareness was gaining ground, if slowly. Recognition of the critical imbalances we have created in our atmosphere and of the urgent need to change our priorities from consumption to conservation was starting to spread. Now we seem to have backtracked a generation and we can't even agree to implement the kind of cuts in carbon dioxide emissions that are essential to avoid catastrophic climate change.

## INTRODUCTION



We feel that Schauberger's perceptions are a vital key to understanding where our culture has gone wrong and that our future as a species depends on being able to reconnect with the natural processes he rediscovered. We shall, therefore, bring into twenty-first century relevance his views of how Nature works and where our society has gone wrong, to see what we can learn from his insights.

Viktor has a singular way of deprecating our culture, as the following comment on our conditioning reveals:

Humanity has become accustomed to relate everything to itself (anthropocentrism). In the process we have failed to see that real truth is a slippery thing upon which the perpetually reformulating mind passes judgment almost imperceptibly. In the main all that is then left behind is whatever was drilled into our brain with much trouble and effort, and to which we cling. To give rein to free thought, to allow our minds to flow freely and unimpeded, is too fraught with complications. For this reason the activity arising from these notions inevitably becomes a traffic in excreta that stinks to high heaven, because its foundations were already decayed and rotten from the very beginning. It is no wonder, therefore, that everywhere everything is going wrong. Truth resides only in all-knowing Nature.<sup>7</sup>

Schauberger predicted that modern human culture's destruction of the creative energies of Nature would result in greater violence and depravity in society. If we were to pay heed to what Nature requires of us, would we witness a reversal of this observable deterioration, and a gradual coming back into balance of a human society that would eventually be able to live in tune with Nature?

But as in our hubris we believe we are at the peak of material human achievement, there is a reawakening of the human spirit, and a great need is being reborn to reconnect with Nature, with our source. This book attempts to encourage and nurture this need.

## Towards a science of Nature

The majority of people in the UK oppose the genetic modification of food because they know in their hearts it is against Nature. The policy is being driven by the commercial interests of big business supported by a compliant political climate. Above all, it is justified

by a science with a materialist worldview that believes Nature exists to be manipulated and exploited for the imagined benefit of humanity. Accountability is apparently not an issue.

The national debate on GM held in Britain in 2003 showed that most people are deeply disturbed by the arrogance of the view that Man can do anything he wants on this Earth. But they have no science to turn to for rebuttal. What is needed is a Science of Nature to supplant the misguided science presently taught in our schools and universities. We need to work with a holistic view of Nature as omnipotent on the Earth, whose laws govern us humans as well and which we flout at our peril — in brief, a Nature with which we must learn to cooperate with humility.

What are these laws of Nature? How are we to know what is our place, and what is demanded of us? Viktor Schauburger excelled as a teacher of the science of Nature. He describes and illustrates, as few have done, how Nature works, with its marvellous and complex processes at the heart of the evolution of consciousness.

Viktor Schauburger is known at present only to a small, holistically-inclined audience that has a strong commitment to environmental issues, to organic growing or to the development of alternative energy sources. Much of the literature on Schauburger is sometimes difficult to follow for the less committed. This book draws on Callum Coats' seminal book on Viktor's work, *Living Energies*. We hope that the less technical approach of our book will facilitate for a broader audience how indispensable are Schauburger's insights if we wish to understand our present ecological predicament. The great ideological conflict of this new century will be between the very limited and flawed mechanistic/deterministic worldview and the holistic understanding of life as a wondrous, intimately interconnected and spiritual whole.

## PART ONE



## An Alternative Worldview



# 1. Viktor Schaubерger's Vision

Our natural world is essentially an indivisible unity, but we human beings are condemned to apprehend it from two different directions — through our senses (perception) or through our minds (conceptual). A child just observes and marvels, but as our rational minds become trained we are taught to interpret what we see, usually through other people's ideas, in order to 'make sense' of our sensory experience. Both are forms of reality, but unless we are able to bring the two aspects meaningfully together, the world will present nothing but incomprehensible riddles to us. This, in fact, is the basic shortcoming of our present human society. It is the great weakness of the prevailing scientific orthodoxy. As Schaubерger noted:

The majority believes that everything hard to comprehend must be very profound. This is incorrect. What is hard to understand is what is immature, unclear and often false. The highest wisdom is simple and passes through the brain directly into the heart.<sup>1</sup>

Some of the pioneers of science were able to bridge this dichotomy. Their way was to immerse themselves so deeply in the world of pure observation and experience, that out of these perceptions the concepts would speak for themselves.

Viktor Schaubерger (1885-1958) possessed this rare gift. As a result of this, more than anyone else of his time he foresaw, as early as the 1920s, the environmental crises in which we are now engulfed. Viktor's forebears had a long tradition of caring for the welfare of the natural forest and its wildlife in the Austrian Alps. Although he was born into a family that cherished unspoiled Nature, Viktor, like most pioneers, was the rebel amongst them.

Born one of nine children, he seemed to get on well with his siblings. His father, nicknamed after the legendary giant 'Ruebesahl,' as he was 6' 8" tall, did not relate well to the young Viktor. He resented the young man rejecting his paternal advice to improve himself with a modern academic training. His brothers acquiesced with their father. The one to whom Viktor remained closest was his

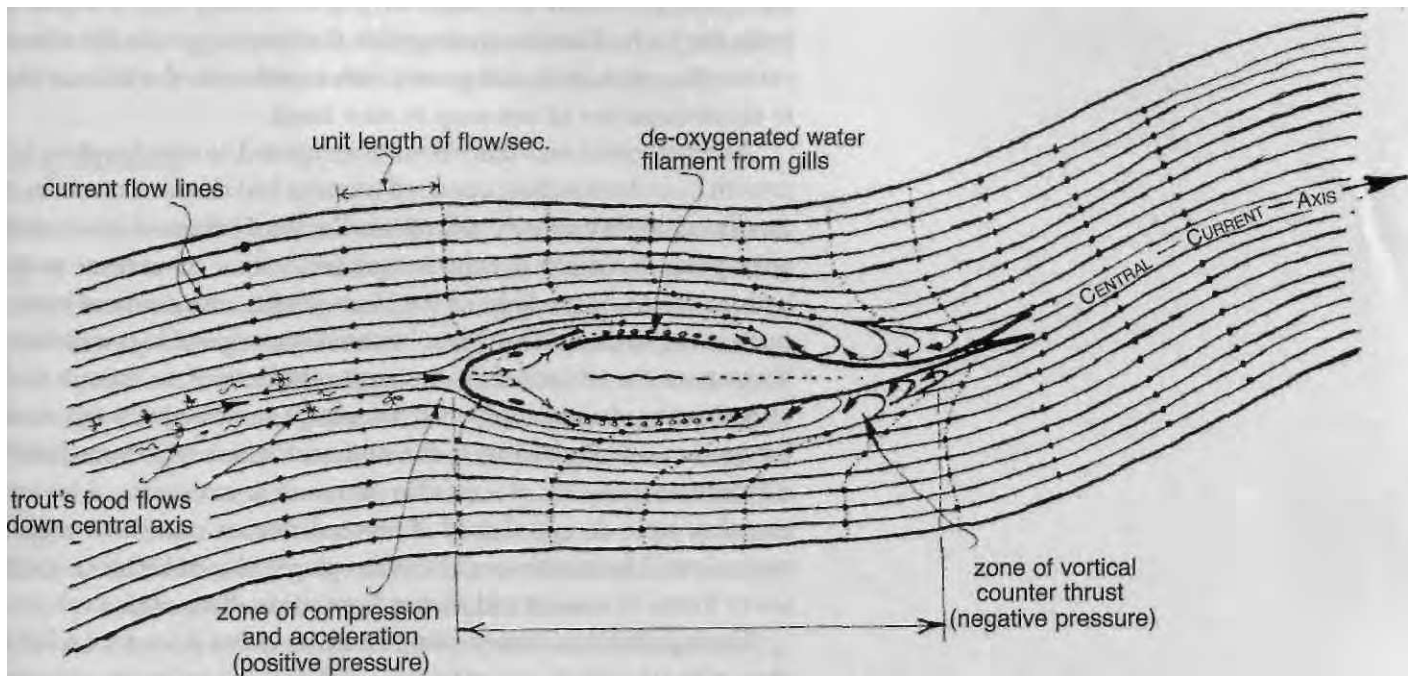
mother. But he told how both his parents believed in the healing power of water, and of their insight that the quality and transportive power of water in a stream was particularly strong on a cold night, and more so under a full Moon.

Viktor was a dreamy child, but was endowed with an extraordinary quality of observation, a keen intellect, and evident intuitive and psychic abilities. As a boy he would spend hours by himself in the forests, exploring streams, watching the animals and studying the plants. He was able to experience first hand what he had first heard from his family, and more, about the life of the natural forest and its creatures. He had no interest in the academic path and declined the opportunity to go to forestry college. He did some more practical training instead, and served an apprenticeship under an older forest warden. Married young, Viktor moved to a post in a virgin forest 93 miles (150 km) south into the mountains. Four weeks after his son was born, Viktor was drafted in 1914 into the Kaiser's army.

After the war he quickly rose from junior forest warden to game-keeper and became the head warden of the forest and hunting domain in Brunnenthal/Steyerling owned by Prince Adolf zu Schaumburg-Lippe. In this large wilderness area, almost untouched by man, Schauburger was able to study how Nature works when left undisturbed. Here biodiversity was undamaged, with many magnificent trees, an abundance of wildlife, and unspoilt streams teeming with fish and other creatures.

## The water wizard

Water was always Viktor's fascination. One day, accompanied by his foresters, he came to a remote upland plateau where there was a legendary spring that emerged from a dilapidated dome-like structure. Schauburger ordered it to be pulled down for safety reasons. One of the older foresters then warned him that if the structure were removed the spring would dry up. Taking note of the old forester's advice, and as a verifying experiment, Schauburger requested that the structure be carefully dismantled, with each stone numbered and its place marked. When Viktor passed again some two weeks later, he noted that the spring had indeed dried up due to exposure to the Sun's rays. Immediately he ordered the structure to be carefully rebuilt and a few days later the spring began to flow again. This taught him that water liked to flow in cool darkness.



Viktor's abiding interest was to discover how to generate energy using Nature's own methods. He worked out how a trout is able to screw its way up a waterfall by hitching a ride on strong levitative currents, and using this principle, the first generator he developed was the 'trout turbine.' To perfect this he needed more precise information on how a trout is able to stand motionless in a fast moving current, and indeed how it can suddenly accelerate upstream. The above diagram illustrates this amazing phenomenon (Fig. 1.1).

The trout is holding its station in mid stream where the water is coldest, densest and has most potential energy. Viktor studied the gills of the fish and found what he thought were guide vanes which would direct the water flow into a powerful backwards vortex current. Its shiny scales minimize friction with the water, but they also create scores more of little vortices that amplify the upstream counter current, particularly towards the tail, which cancel out the pressure on the fish's snout. A zone of negative thrust is created along the whole of the trout's body and so it stays in the same place. These counter currents can be increased by flicks of the tail, creating negative pressure behind the fish. Flapping of the gills amplifies the vortices along its flanks, giving it a sudden push upstream. The

Fig. 1.1. The stationary trout. The trout normally swims in the middle of the central current, where the water is densest and coldest. Its body displaces and compresses the individual water filaments causing them to accelerate. As their critical velocities are exceeded, vortices or countercurrents are formed along the rear part of the trout's body, providing a counterthrust to the current, allowing the trout to remain stationary in the fast flowing water. If it needs to accelerate, it flaps its gills, creating a further vortex train along its flanks, increasing the counterthrust upstream.



faster the gills move the more oxygen-deficient water is expelled from the body. This combining with the free oxygen in the water, causes the water body to expand, with an effect on the fish similar to squeezing a bar of wet soap in your hand.

Another experience that Viktor often quoted as significant for his growth in understanding, occurred when he had shot a chamois buck on a frosty night under the full Moon. The buck fell into a ravine and, attempting to retrieve it, Schauberger fell down a snow chute to the bottom. In the bright light of the Moon, he became aware of movement in the stream below where he stood. Some green logs were bobbing up on the surface, then sinking to the bottom, as though they were dancing. And not only that, but a large stone began to gyrate at the bottom, and then came to the surface, where it was immediately surrounded by a halo of ice. Other stones also surfaced, and he saw that they were all egg-shaped. It seemed that no uneven or ragged stones would float in this way. Schauberger developed his ideas of different forms of motion and shapes from these observations.

Having seen how water could carry its greatest load on a cold, clear night, he made practical use of this observation. During the winter of 1918, the town of Linz was suffering a severe shortage of fuel as a result of the war when the draft animals had been commandeered. There was a small stream that ran through narrow gorges and which was considered unsuitable for transporting logs, but he wanted to try out his ideas using this stream. His offer to help being accepted by the authorities, he describes how he proceeded:

I had observed that an increased water level after a thaw builds up sandbanks that are then partially dispersed when the water temperature drops during clear cool nights. I then waited for an increase in the strength of the water current. This takes place in the early hours of the morning, when it is coldest, and particularly at full Moon, although the volume of the water is apparently less due to its compression on cooling. I planned for the timber to be put in the stream under these conditions, and in one night 1600m<sup>3</sup> were brought down to the valley.

Viktor had discovered that when water was at its coldest, it had much more energy that enabled it to carry more sediment, gouging out deposits of sand, and concluded that in these conditions it would be

able to carry a greater weight of logs. This was a principle that enabled him to turn upside down the current theories of hydraulics, and particularly the methods of river and flood management.

## Log flumes

Schauberger was looking for a way to demonstrate to others his ideas about movement in Nature, and to discuss them with technical experts and scientists. His opportunity came in 1922 when the owner of the forest and hunting reserve on which Viktor was a junior warden, Prince Adolf zu Schaumburg-Lippe, was looking for a way to avoid bankruptcy. (His wife, the Princess, had very expensive tastes.) After World War I there was a demand by the expanding building industry for timber, and inaccessible stands of mature trees were earmarked for felling. The timber flotation methods of the time were fairly crude, straight channels running down the valleys, which caused the logs enormous damage, many being good only for firewood.

The Prince offered a prize for the construction of a flume to bring logs down from the remote areas, and Viktor eagerly submitted his plans. These were, however, rejected by the administrators of the estate as totally unworkable, as the proposed method went completely against accepted hydraulic principles. Through a chance meeting on a hunting expedition, the Princess asked Viktor what savings could be achieved through his method. On claiming that he could offer a cost of one schilling per  $\text{lm}^3$  against the normal cost of 12 schillings per  $\text{lm}^3$  for flotation, she offered to have his salary trebled should he succeed, despite his lack of academic qualifications. The Prince, driving a hard bargain, made a condition that Viktor should build the flume at his own expense and that it had to deliver a minimum of  $1,000\text{m}^3$  daily.

There was much scoffing by the experts who judged Schauburger completely mad, and who made malicious predictions of the outcome; as Viktor describes:

The construction was completed after some four months. The great timbers were in position. The day before the inauguration I tried a test. An average sized log was put into the flume. It floated down for about 100 metres and then suddenly grounded on the bottom, causing the water behind to rise and overflow the flume. I saw the scornful faces of my workers, realized that I had miscalculated and felt discouraged. The log

### 1. VIKTOR SCHAUBERGER'S VISION

was taken out of the flume. I thought that there was too little water and too sharp a drop. I did not know what to do. So I sent my workers home so that I could quietly consider the problem.

The curves of the flume were correct; of that there was no doubt. So what had gone wrong? I walked slowly along the flume until I came to the trap and the sorting basins, from which a further length of flume continued. The basins were full. I sat on a rock above the water in the Sun.

Suddenly I felt something moving below my leather trousers. Jumping up I saw a coiled snake. I picked it up and threw it away; it fell into the basin and tried to get out, but the bank was too steep. As it swam back and forth I was amazed that it could swim so fast without fins. Observing it through my binoculars I saw its peculiar twisting movements in the clear water. Finally the snake reached the far bank. For some time I stood quietly and went over in my mind the snake's bodily movements of horizontal and vertical curves. Suddenly I understood how it had done it!

The snake's movement was that of a spiral space-curve twisting like the horn of a Kudu antelope. Calling back his workers, he ordered the holding basin to be emptied and the log removed. He then gave instructions to attach thin wooden slats to the curved sides of the flume walls, which would act like the rifling in a gun barrel, and would make the water rotate anti-clockwise on left hand bends and clockwise at right hand bends. Promised double wages, they worked through the night, and the adjustments were completed in time for the opening in the morning.

The inauguration of the flume was attended by the Prince and Princess, by the Chief Forestry Commissioner and a number of hydraulic specialists, the last ready to gloat over Viktor's humiliation. After greeting the royal couple and the head forester, he continued:

I opened the lock, behind which my workers started to arrange the smaller logs in the water. Unnoticed, a heavier log about 3ft (90cm) in diameter went in with the others. The senior log master shouted, 'We cannot have that one.' I gave a quick wave and the unwanted log floated high, towards the outflow. Quickly it created a blockage that raised the water level. No one said anything, staring at the log rising out of the



water, waiting for the flume to overflow. Suddenly there was a gurgling noise. The heavy log swung first to the right, then to the left, twisting like a snake, its head high as it floated away quickly. A few seconds later the log slipped through the first curve and was gone.

Schauberger's flumes followed the curves of the valley, with guide vanes mounted on the curves, making the water spiral along its axis. With the careful monitoring of temperature along the route, bringing in cold water where necessary, he found it was possible to float logs under conditions regarded as impossible, using significantly less water, and achieving very high delivery rates. Parts of his flumes can still be seen in Austria today.

The flume at Steyrling was a great success, much to the chagrin of the observing hydraulic engineers who were so sure his crazy scheme would fail. Schauburger's fame quickly spread. Experts came from all over Europe to study the flume's construction. He was appointed State Consultant for Timber Flotation at a high salary. The academics were furious that he could give directives on technical questions which he could not understand with his inadequate education, and that he was paid twice as much as any of them. In the crisis that followed, Viktor resigned, and accepted a job with one of Austria's largest building contractors for whom he built installations all over Europe. If this has been his only accomplishment, Viktor Schauburger would still be known as the man who completely mastered the art of transporting timber by water.

## Water, source of life

His painstaking and inspired studies of water were the source for a seminal paper that Schauburger wrote on 'Temperature and the Movement of Water.'<sup>2</sup> Central to these was the influence of minute differences in temperature, which are presently wholly ignored by modern hydraulics and hydrology. Natural, living, water, which is conventionally regarded as a homogenous substance, he showed to be composed of many strata or layers with subtle variations in temperature and electric charge which influence the water's motion, its form of flow and its physical properties.

Schauberger saw water as a pulsating, living substance that energizes all of life, both organic and inorganic. He called it 'the life blood

### 1. VIKTOR SCHAUBERGER'S VISION

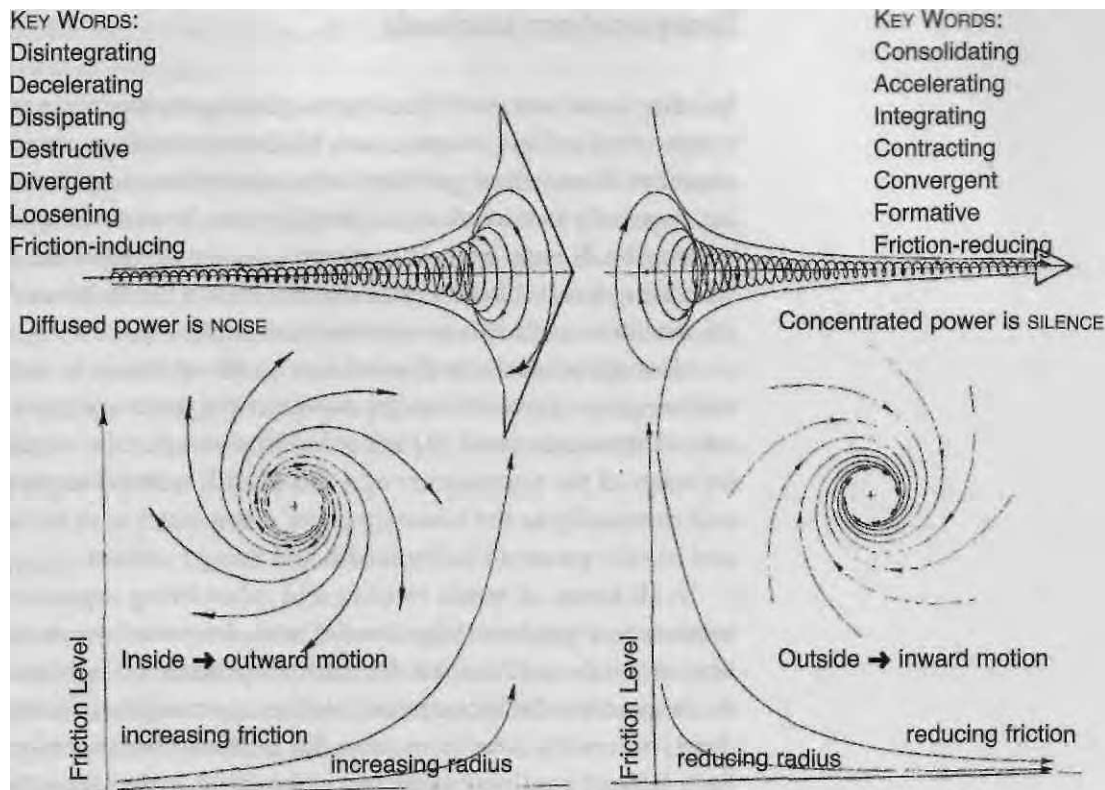
of the Earth.' Whether as water, blood or sap (which are essentially water), it is the indispensable constituent of all life-forms, and its quality and temperature is fundamental to health. When it is healthy it has a complex structure that enables it to communicate information, carry energy, nutrients and healing, to self-cleanse and discharge wastes. He believed that one of the causes of the disintegration of our culture is our disrespect for and destruction of water, the bringer of life, for in doing so we destroy life itself. Viktor also profoundly believed that our dangerous technologies produce poor water that has lost its energy and its ability to pulsate — and is effectively lifeless. This dead water produces inadequate nutrition, and Viktor believed that its regressive energies are responsible for degenerative diseases like cancer, for lower intelligence and for community turmoil.

Natural forests (not the monoculture plantations of today) are the cradle of water and also the main source of oxygen for the planet. Their precipitate destruction, Schauberger predicted, would result in global warming, severe water shortage and the creation of deserts. He made brilliant observations of the way in which trees in a natural, diversified environment are biocondensers of energy (accumulating and storing energy from both Sun and Earth) — how the groundwater (man permitting) brings Earth's energy to the tree in order to balance the Sun's energy.

## Motion is crucial

An understanding of motion may be the most important of Schauberger's discoveries. Our current technology uses the wrong form of motion. Our machines and processes channel agents such as air, water, other liquids and gases into the type of motion that Nature uses only to decompose and dissolve matter. Nature uses another form of motion for creating and rebuilding. Our technology's mode of motion creates chaos, noise and heat, bringing disease to organisms and the breakdown of structures. Visualize if you will, what happens in an explosion — matter is torn apart, fragmented and destroyed. Its effect is to create degraded energy. Through its dependence on the decomposing mode of motion our technology creates enormous energy pollution and entropy, dangerously affecting the vital biodiversity and balance of our ecosystems. Our mechanical, technological systems of motion are nearly all heat- and friction-inducing, with the fastest movement at the

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periphery (as in a wheel), a form of motion that is disintegrative, noisy and inefficient; this is the way we generate our power — centrifugally. By contrast, Nature uses the opposite, centripetal, vortical form of motion, moving from the outside to the inside with increasing velocity, which acts to cool, to condense, to structure, assisting the emergence of higher quality and more complex systems.

Spirals are a basic form of motion in Nature, but Schauberger's recognition of the vortex (see p. 42) as the principal creative movement system in the Universe is at the core of his Eco-technology and the key to his valuable implosion research. From the tornado to plant growth, it is Nature's mechanism for transforming energy from one level to another (Fig. 1.2).

Asked about our technology 'How else should it be done?' Viktor's answer was: 'Exactly in the opposite way that it is done today.' He saw that the potential for creating energy for human needs by replicating the in-winding motion of Nature was the way of the future.

Fig. 1.2. Centrifugal and centripetal movement. Comparison between axial>radial (inside>outwards) motion, the way our current technology works, and radial>axial (outside>inwards) motion, Nature's way of generating creative energy.

## 1. VIKTOR SCHAUBERGER'S VISION



## Temperature controls

Another cornerstone of Viktor's ecotechnology is the importance of temperature in Nature's processes. Modern technology creates vast amounts of waste heat (entropy) which contribute to global warming, especially in cities and industrial centres (carbon dioxide from burning fossil fuels being the principal source of global warming). Increasing heat will ultimately destroy life on Earth. Nature's creativity, however, thrives on measured coolness.

Most significantly, he showed how small variations in temperature are as crucial to the healthy movement of water and sap as they are to the human blood. He identified in particular the importance for water of the temperature of +4°C (39°F), referred to physically and chemically as the 'anomaly point,' when water is at its densest and has the greatest vitality, health and energy content.

In all forms of water, in trees and other living organisms, the temperature gradient (the upward and downward movement of temperature) is active. In the natural process of synthesis and decomposition, the temperature is either approaching (positive gradient) or moving away from (negative gradient) the anomaly point. Each form of gradient has its special function in Nature's great production; the positive (cooling) temperature gradient must play the principal role if evolution is to unfold creatively. We shall be looking at this in more detail in the appropriate chapters.

Schauberger found that temperature changes according to certain patterns and cycles that activate life and death, bringing increase and decrease, decomposition and renewal. Temperature controls the innate energies that produce the pulsations that punctuate and control all life's processes. These energy pulsations which at one moment dissociate or disconnect, and at another recombine both energy and matter, are the mechanism for creating the countless individualities and qualities that make up life as we know it. Viktor said that the cyclical change of temperature creates the conditions suitable for the evolution of new individual life forms or the renewal of existing ones.

## Evolution

Viktor Schauburger recognized that Nature's evolutionary purpose is to facilitate the emergence of higher life forms, to promote greater

complexity of interrelationships and to raise the level of consciousness of the higher life forms, all a consequence of the continual refinement of energies.

Viktor showed that highly ordered systems lose their stability when their environment suffers deterioration. He predicted that a decrease of biodiversity in Nature would bring an increase in violence and a degeneration of spiritual qualities in the human community.

We think of evolution in terms of technological development. But if one aspect of potentiality is developed at the expense of the others, you end up with an unbalanced person, or even with a monster. This is one of the most important lessons our culture has to learn. It might well apply to the unregulated biotechnology industry. What level of crisis will be required to force us to rethink our priorities and change direction?

## Balance

Perhaps the most important of Schauberger's insights that we have to heed is the importance of balance in Nature. The nature of some attribute of an organism, its wholeness or unity is composed of two seemingly opposed qualities in resonant balance. Thus, for example, both egoism and altruism are necessary as human qualities, but for evolution to proceed, altruism must be more in the ascendant. Because our culture has emphasized the coarser qualities, our creative evolution has been arrested, and we have attracted the darker energies of degeneration, with increasing disorder and violence as the outcome.

All the qualities found in Nature have a coarser physical aspect that our worldview attracts, to the discouragement of higher, more subtle energies; we shall be looking at how this impinges on the environment as a whole. In this way Nature's balance is upset, the most obvious being the supremacy today of the more aggressive energies of humankind.

## Implosion

Nature's methods of producing energy are silent, but inherently far more effective and powerful than our mechanical techniques, as Schauberger was to prove with his implosion machines that produced prodigious amounts of power. The difference between the

two forms of energy production is fundamental to the quality of any process in our world.

Not only does this implosion technology produce much more energy than the 'explosive' methods currently employed, but it creates no waste, pollution, global warming or other damage to Earth's fragile ecosystems. Schauberger invented a number of 'over-unity' machines that produced a substantial excess of power over input. These included means of propulsion for aircraft, submarines, and cars; different devices that produced power, coolness or heat for the home, and invaluable machines for making high quality springwater from polluted water. Unfortunately the working models were destroyed at the end of the Second World War, and his detailed drawings are missing.

His descriptions of these appliances have inspired a number of inventors searching for 'free energy' generation. It seems that no-one has quite succeeded in replicating one of Viktor's, but there are some promising devices ready to go into production. The main obstacles to their introduction include personal harassment from agents of the energy 'establishment,' the lack of imagination by politicians and investors, and the vested interests of the fossil fuel industries, whose lobbying of government is bent on delaying as long as possible the day when people will be able to gain their true independence by producing cheaply their own power needs at home, as Schauberger envisaged.

## The visionary

What we have to take on board, as it were, is the extent to which the degraded energies of our present technologies are polluting the world, both from excess heat, but more particularly because they not only block or impede the natural productive and healing energies, but actually encourage degeneration. We can reduce global warming by significant reductions in CO<sub>2</sub> emissions. But we cannot hope for the long-term survival of humanity without ditching our current technology models for those that are wholeheartedly Nature-friendly. Schauberger shows us the way ahead. For example, ecotechnologies are being introduced into the fragile Himalayan ecosystems of Ladakh, as a means of securing economic self-sufficiency for a proud people who are losing their independence in the face of imposed economic exploitation from outside.<sup>3</sup>



Viktor Schauberger came from a background that was rare even a century ago. Several generations of his family had lived in the unspoilt Alpine forests. They understood many of Nature's laws. Viktor's refusal to go to college came from a fear of being indoctrinated, as he believed he would lose both his intuition and his ability to see the magical interconnections within Nature. His natural ability voluntarily to change levels of awareness was the key to his singular discoveries of how Nature works. He was able to enter a more refined state of consciousness, as when he describes how he let his awareness enter the flowing water in a stream, ready to bring back intuitions of what the water required for its health.

This book is not about going back to some romantic past, or about discarding science as a discipline, or technology as a means of making our lives more effective. It is about, as Schauberger used to say, 'thinking an octave higher.' Viktor was a supremely capable scientist, an impeccable observer, a thorough researcher and an inspired inventor. He also predicted, seventy years ago, the climate change disasters that we are now experiencing, and the moral and spiritual collapse of our civilization. But he also, supremely, gave us the keys to reclaiming our heritage as true guardians of Nature and, as we shall see, showed us how to repair the damage we have done to our precious Earth.

## 1. VIKTOR SCHAUBERGER'S VISION



## 2. Different Kinds of Energy

### Subtle energies

In the last 200 years, the application of increasingly complex technologies has accelerated enormously, overwhelming the far more subtle energy systems of Nature, with dire consequences for us all. For while some will argue that these have brought benefits to many on the material level, the quality of life on the planet has seriously deteriorated, with severe damage to ecosystems and to biodiversity.

No one explains, as convincingly as Schauberger, just how this has come about. He found that the energy our technology propagates is destructive of the evolutionary impulse in life forms, precipitating a downward spiral in the quality of organisms, and in the human quality of life. Imagine trying to be creative in a steel mill or a slaughterhouse! The pride we hold for our Machiavellian machines that pour out incessant noise and heat is based on the mistaken belief that we represent the summit of evolution.

Schauberger pointed out that, besides having the ego-centred need to control, modern science sees only the surface of things.<sup>1</sup> Its reductionist (everything in separate compartments) and materialistic agenda prevents an understanding of the energetic processes which, as Schauberger demonstrated, are essential for any material substance to come into being; in the same way that an idea or impulse must precede any human action. These subtle energies are essential to the increasing quality Nature demands in her evolutionary process. When these are subdued, only deterioration can result, which inevitably also affects human aspirations. So energy is cause, form is effect. An understanding of any creative process is impossible without true awareness of subtle energies.

### Schauberger's worldview

Viktor Schauberger took the ancients' view of the Sun as the male inseminator of Earth to create bountiful Nature. But, also like the



ancients, he saw Nature as the mirror of the Divine. Following Goethe's eighteenth century view, he conceived of God as a kind of 'Divine Weaver' of the unfolding tapestry of Evolution. It was through this vision that Viktor found common ground also with the Austrian philosopher Rudolf Steiner.

However, he saw the Earth and Nature also as part of a much larger cosmos. The visible Sun is but the kernel, the only visible part, of a much larger sun that, with its radiative body, stretches to the very limits of the solar system. The Earth is within this sun, bathed by the solar wind, spiraling with its sister planets like organs within the same body. Our own bodies too are but kernels of a much broader, invisible self that extends around us, and with which we can feel another's energy.

He was influenced by Theosophical thinking that conceives the Universe as a holistic system, and criticized contemporary thinking that cannot accept our subservience to Nature; he said that this limitation of awareness prevents us accepting our place in the Universe, of which the consciousness we call Nature is a part. This holistic view of all creation is aided by the idea of a hierarchy of energies, from the very finest that are inconceivable to humans, down to the coarse, material energies which dominate contemporary society. Schauberger would refer to these different levels as 'octaves,' but we shall describe them as 'dimensions' or domains.

## Why the mystery?

His scientific contemporaries misunderstood Viktor Schauberger because his frame of reference was the subtle energies in Nature, and they hadn't a clue what he was on about. His heightened sensitivities enabled him to be aware of phenomena more subtle than most of us are able to perceive. As this was his *modus operandi*, we need to take a look at this whole question of energies.

Firstly, we need to accept that the worldview of our contemporary culture is that of the material world; that is its reference point. We don't learn about energies at school or at college, other than the purely mechanical or electrical. Any phenomenon that is nonmaterial poses a difficulty for conventional science, for it cannot be described in a manner that is familiar to its discipline. Thoughts and emotions are energies we all experience, but how

HIDDEN NATURE

do we study them in the laboratory, other than their physical effects?

The various forms of effective energy medicine such as acupuncture, homeopathy, cranial osteopathy (and others) are not understood by orthodox medicine and, for that reason, are generally dismissed and usually opposed. It is not sufficient to see that acupuncture works; or that most people are intuitive. If you can't explain it, then modern knowledge says it must be bogus. We are not talking about religion, beliefs or values, but about things that actually happen on a nonmaterial level.

Earlier cultures acknowledged the tremendous power of immaterial life-energies. The life force (Ch'i) that moves along the energy meridians in the human body was recognized by the Chinese several thousand years ago. To correct bioenergetic imbalances or blockages in the body, they developed acupuncture at that time, a treatment still widely used in China and now also in many Western countries by accredited practitioners and by some more open-minded physicians.

While the life sciences, for the most part, are still imprisoned in the mechanistic view of life, the physical sciences are undergoing a revolution. The study of sub-atomic phenomena has led to the development of quantum physics, in which the environment becomes unpredictable. The boundaries between energy and matter become blurred, so that the smallest constituents of matter — particles and electrons — are interchangeable. Matter becomes energy, which leads to the conclusion that everything is energy.<sup>2</sup> Sadly the rigid boundaries that have developed between different scientific disciplines have as yet denied these insights to the life sciences and to medicine.

As there is nowhere intellectually respectable to slot in these 'anomalous' phenomena, new labels have to be found, like 'energy medicine' or 'alternative science.' Schauberger was a pioneer of alternative science, which pushes the boundaries of what is worthy of study beyond the merely physical.

## Degrees of energy

We know the ways in which energy manifests itself. We can see that flowing water is energetic. We can see that energy is associated with creating clouds. Energy is active in an engine combusting gasoline

### 2. DIFFERENT KINDS OF ENERGY

or petrol. But what is its essence, a process that always seems to be connected with movement?

When we look up at the fluffy clouds on a summer's day, we may wonder what they're made of. So wispy and light, each cloud may contain hundreds or thousands of tons of tiny individual droplets of water, invisible and in constant motion. A collection of minute, invisible, weightless things becomes large and visible. It's a question of density. Our entire universe forms in the same way.

A material object consists of billions of atoms, each composed of sub-atomic particles, each of which is a vortex of energy. Gyration around each other in vortices, the sub-atomic particles form heavier particles of energy that become denser, eventually slowing down to the point where they may become visible or even tangible.

Water is a substance that appears in different forms according to its compactness. In its solid state, as ice, its atomic particles move the most slowly. As the ice melts, they move faster, need more space to gyrate or vibrate, creating the less dense form, liquid water. Heated up, the particles accelerate, requiring more space, and become steam or the invisible gas, water vapour. Their state and appearance differ, depending on their expression of energy as movement or vibration, and its rate of motion is called its frequency. The principles of vibration and frequency determine the countless energy forms in our world.

The material substance we see is the result of energy setting up a visible 'blur' by vibrating in and out of a physical state, with a frequency and density that makes it seem like a static whole. The forms create an illusion of being solid and static, caused by countless particles constantly accelerating and then slowing down enough for us to see them as matter. When you see that all material objects are composed of atoms and particles in constant motion, it becomes possible to understand that everything is energy.

## The vortex as the key to creative evolution

The vortex is a window between different qualities or levels of energy. Black Holes can be thought of as vortices linking different parts of our universe or even different universes. The vortex



and spiral became hallmarks for Viktor Schauberger, as for him they were the key to all creative movement. As we shall demonstrate later, the vortex is most clearly seen with water, which it uses to purify and energize itself, introducing finer energies to wipe clean the bad energies of the water's previous memory of misuse.

One could use the metaphor of a musty room that feels stale and unwelcoming. Once sunlight and fresh air are allowed to penetrate, the unpleasant atmosphere is quickly transformed. It is a natural law that the more refined energy always prevails over the coarser.<sup>3</sup> As Viktor Schauberger demonstrated, Nature's evolutionary imperative is continually to refine and to create greater complexity and diversity, the vortex being the key process in this endeavour.

## Energies as creative process

We normally think of energy as the power to do work, as to be able to run across a busy street. But thought is also energy. For the human, creativity is dependent on thought. Between having an idea and our wish to see it fulfilled lies a complex creative process.

If I want to make an apple pie, there is first the idea, then the planning, translating this through visualization and then finally the physical creation of the pie. This is much more important than we realize. From the simplest task like tying your shoelace, to the complex challenge of becoming a tennis champion, the better the 'mind pictures' of how we are going to perform the required actions, the more successful will be the outcome. The force, the impulse, which is the motivator for us to create, is an unseen energetic process.

Viktor Schauberger shows us that we need to think of energy in Nature as the potential for creation, not as a mechanical working process. He criticized our present view of how Nature works as untenably mechanistic, which he said this is one of the main reasons why we're in such a mess. Our culture thinks of Nature as being like a big machine that can be manipulated and its resources extracted for our own greed, rather than a creative system that has a purpose.

Productive energies make it possible for life forms to arise that are appropriate to the needs of the environment. It is as if Nature

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has a blueprint for what is required for a balanced and diversified community. For example, a healthy river that is carrying energized water will create on its banks trees that it needs to keep it cool and protect its vitality.

James Lovelock and Lynn Margulis recognized this creativity by naming the Earth 'Gaia' after the classical Earth goddess. They described how the Earth behaves like an organism, and how the conditions for life on our planet are maintained within very narrow limits, in spite of the enormous variation in the Sun's radiation, and the effect of harmful cosmic rays. This seems to work in a similar way to the self-regulating system in the human body that maintains the blood temperature in the narrow range essential for health (around +37°C/98.4°F). A mechanistic scientist would insist that this is just a computer function, but computers don't operate with purpose and meaning.

## Spiritual science

To say that purpose and meaning are more to do with belief or religion is, I believe, a mistaken view. Purpose can be ascribed to living systems. Watch a community of bees at work, and there is a significant purpose! Meaning is usually associated with sentient beings. Being creatively human is difficult without a sense of meaning in one's life. Schauberger didn't talk much about God, but as we shall see he recognized in the extraordinary fecundity of Nature, and indeed in all of her processes, an indisputable sense of meaning and purpose. If it makes more sense to you, call it 'spiritual' science.

It is not necessary to postulate a God that created every living thing and who is behind all the subtle energies in Nature. Probably the idea, found in so many religions, of God as a being like superman whose support can be called on for your little or big power plays is in much the same category as that of regarding Earth's resources as private property for exploitation. The concept of co-creation — that all of creation participates in and contributes to the creative process, is often more acceptable to the thoughtful searcher.

We are clearly influenced by the beliefs of the culture into which we are born. The worldview of contemporary Western society represents an enormous shift away from what has been the norm of

human experience over its half million or so years on the Earth. The clearest modern examples of a more 'normal' worldview are the Buddhist beliefs, the Celtic, and those of the indigenous peoples worldwide who share the idea that the Great Spirit (or God) inspires and inhabits the rocks, the waters, and all living things.

In our detachment from the complete or 'real' world, we assume that it is normal to divide different 'bits' of knowledge into separate compartments or 'disciplines.' In fact it is quite abnormal. For traditional peoples, there are no barriers between cosmology, science and the spiritual, for in the interconnectedness of all Nature there is no separation; all is One.

## Different dimensions

Viktor Schauberger didn't write about hierarchies of energy, but we know that he subscribed to Theosophical or Eastern concepts of energies, so we shall give an outline of these in order to understand where he was coming from.

Our physical spacetime dimension contains that spectrum of energy that vibrates at a rate low enough to support material form. This Third Dimension or domain has length, breadth and height, but it also has the three components by which humans may be conscious. These are: the physical, neutral energy through which the material world exists; the emotional, negative energy by which we receive sensory information; and the mental, positive energy by which we project our beliefs and personalities into the world. (NB: The terms negative and positive are used not in a qualitative sense, but more in the electrical sense of polarity.)

Our daily lives demonstrate the differences between these energies. The mental is the most changeable; it is harder to change our feelings, and the dense, physical form is almost impossible to change. If we move into a lower dimension, we lose one aspect of consciousness, and if we move higher, we gain one. Moving from the third to the second dimension, we lose the ability to generate original thought. Moving from the third to the fourth, we add the ability to mould time.<sup>4</sup>

In terms of the pure physicality of our three-dimensional world, our consciousness places and senses each lower dimension as being external to the body, although, paradoxically, it is both within and without, and permeated by the higher one (see Fig. 2.1, next page).<sup>5</sup>

## 2. DIFFERENT KINDS OF ENERGY



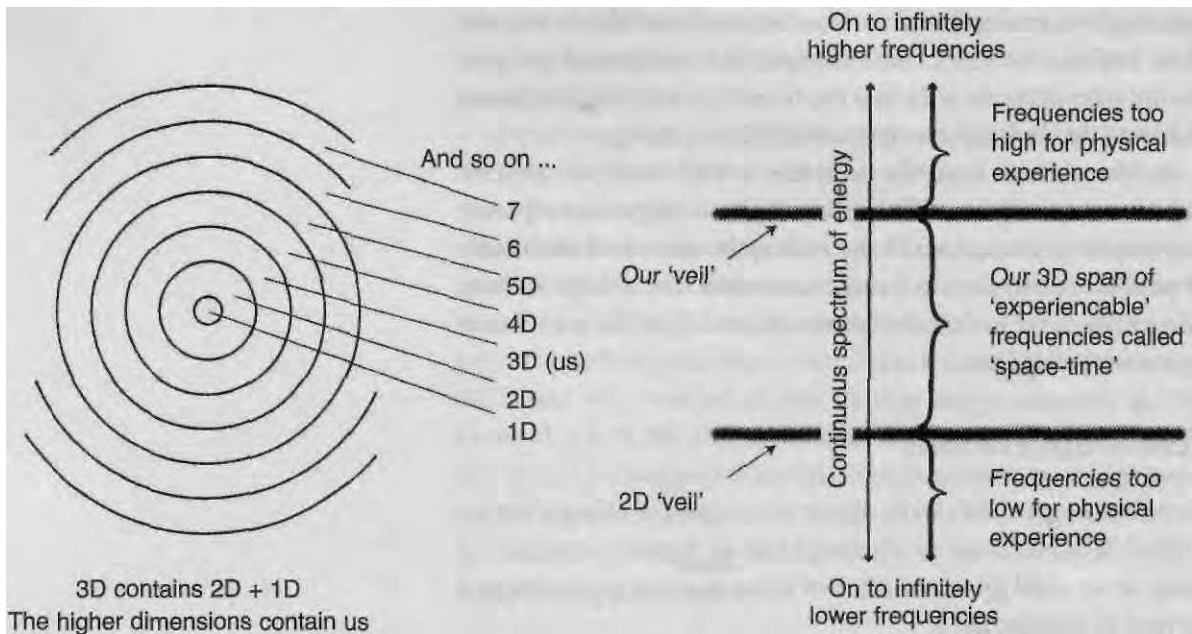


Fig. 2.1. Different dimensions or levels of existence.

Each dimension has a 'veil' at its upper limit which renders higher levels inaccessible. To a lesser extent someone of a 'lower' state of consciousness may be unaware of another in a 'higher state.'

Intuitive or inspired creativity, the level of expanded consciousness sometimes reached by inventors or by people of great vision, belongs to the fifth and sixth dimensions. It is apparent that Viktor Schauberger had the ability to tap into this reservoir of inspiration. All subtle dimensions are present on Earth, interpenetrating the third dimension, though we are not normally conscious of them.<sup>6</sup> The other animals or humans with raised consciousness have a wider range of perception. A close relationship with a dog, cat or horse often reveals instances where the animal is aware of a nonphysical 'presence' which is beyond our own awareness or which may be a spirit presence. If we lower our consciousness, we feel less ability to control our own lives. If all our three components of consciousness are being fully used, then we can experience the full potential of being human, which is the gift of free will.

We shall not discuss in detail here the important energy shifts that are occurring on our planet at this time. In line with the idea that God, or the All-That-Is, seeks constant evolution or expansion of consciousness, ancient teaching has long predicted that the Earth and all its inhabitants would graduate from the third to the

fourth dimension in these times. Human society is becoming increasingly polarized between the materialist-based (third dimension) power structures that are reluctant to release their control, and those who wish to participate in a fairer and more spiritually based society.<sup>7</sup>

## Changing octaves

When Viktor Schauberg said, 'We must think an octave higher,' (if we are to get out of this mess), one tends to think he means being less taken in by the physical view of life, and become more aware of its subtle aspects. While that is true, he did propose an interesting way of illustrating the concept of how a particular kind of energy can be taken up one octave. On the face of it, the following may be considered contradictory, but a more interesting view is to see them as complementary or reciprocal energies an octave apart, one a development of the other (like thesis and antithesis), which, when combined are reconciled and become a unity.<sup>8</sup>

lower octave		higher octave	
Matter	X	Spirit	= unity
Egoism	X	Altruism	(= unity)
Analysis	X	Synthesis	(= unity)
Heat	X	Cold	(= unity)
Gravitation	X	Levitation	(= unity)
Electricity	X	Magnetism	(= unity)
Bioelectricism	X	Biomagnetism	(= unity)
Pressure	X	Suction	(= unity)
Expansion	X	Impansion	(= unity)
Centrifugence	X	Centripetence	(= unity)
Oxygen	X	Carbones	(= unity)
Yang	X	Yin	(= unity)

The second column, the 'antitheses,' being more refined, have the potential to contribute to creative evolution by being able to bridge the gap between the idea and manifestation. They are, if you like, endowed with special vibrational energies and powers.

Callum Coats, in translating some of these more difficult concepts from Viktor's German terms, coined his own to describe the different forms of subtle energies from the fourth and fifth dimensions, which

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collectively he called 'ethericities.' By these he meant the bioelectric, biomagnetic, catalytic, high-frequency, vibratory, super-potent elements of quasi-material qualities:

These ethericities are further categorized as 'fructigens,' 'qualigens' and 'dynagens.' They respectively represent those subtle energies whose function is the enhancement of fruitfulness (fructigens), the generation of quality (qualigens) and the amplification of immaterial energy (dynagens). According to their function or location these may be female or male in nature. There are thus female fructigens and male dynagens, for example.<sup>9</sup>

We shall be using these terms from time to time where they are helpful.



### 3. The Attraction and Repulsion of Opposites

#### The Sun as a fertilizing entity

We all know that sexual reproduction requires insemination of the female by the male but, according to Viktor Schauberger, the Earth works on the same principle. From Nature's point of view, this starts with the Sun. Throughout nearly all of humanity's time on this planet, the Earth has been regarded a sacred being, the Great Mother. The Sun held an equally significant place in our forebears' worldview. Most of the ancient cultures regarded the Sun as the primary, masculine deity, fertilizing the Earth in order to create life. The eighteenth century thinker, Johann Wolfgang von Goethe referred to Earth's creative spirit as the 'Eternally Female' and the 'All-uplifting' (or levitating).

Viktor Schauberger uses explicit sexual terms to explain this vital natural process. He talks of the Sun impregnating Mother Earth in order to create the incalculable number of different life-forms that inhabit this planet. The Sun behaves very much as a living body. It is known to pulsate rhythmically, its surface expanding and contracting 3km (1.8 miles) every 160 minutes. Its life-giving energies warm the atmosphere and penetrate deep into the ground to inseminate the elements and substances of the Earth (the sleeping princess). The beneficial UVc rays<sup>1</sup> which the ozone layer allows through, have to decelerate in order to unite with the receptive and passive female energies rising inside the Earth; these slower energies have to accelerate, for fertilization can take place only if the two resonate with a sympathetic rate of vibration (see Chapter 4).

All of life, from the gross material to the ethereally subtle, evolves through the interaction of male and female, positive and negative, energies. Each polarity has a particular manner of expression, the downwardly-radiating solar energy meeting the Earth at right angles to the energies of the Earth ranged in a layer below the surface (see Fig. 3.1). Their properties and potentialities are opposite, but complementary, to each other. The manner in which these polarized energies

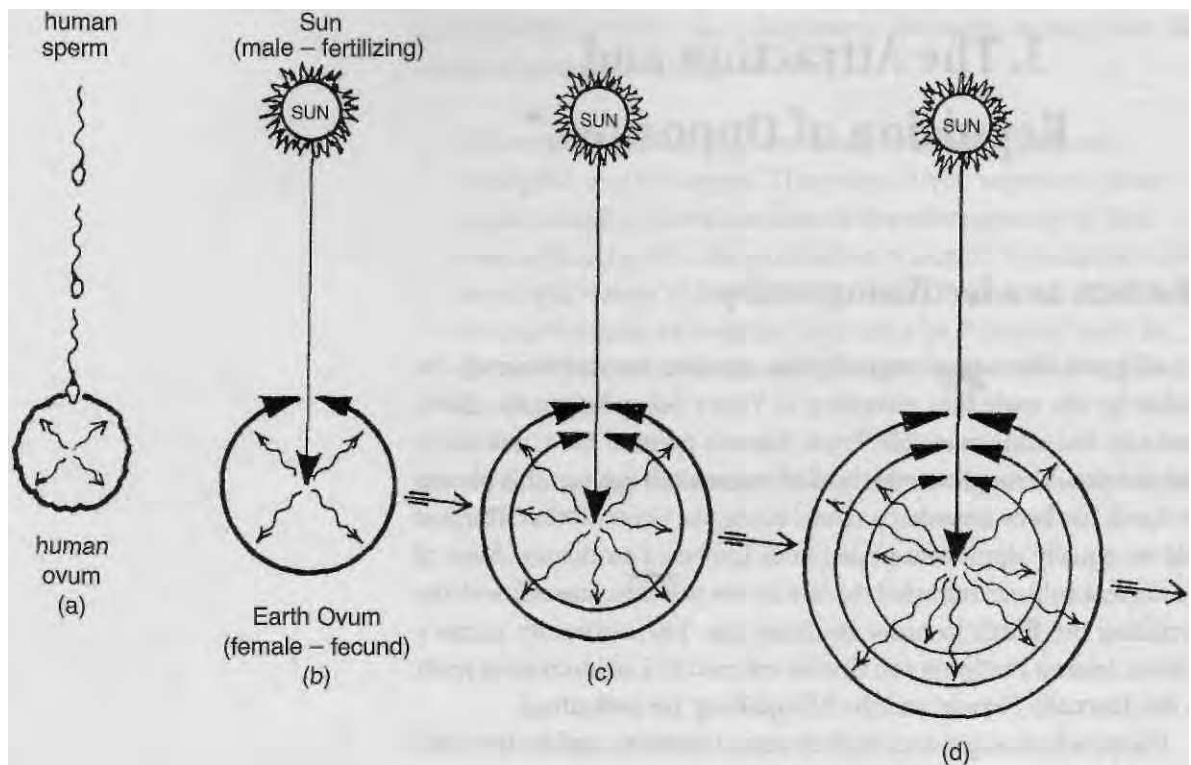


Fig. 3.1. Cosmic fertilization.  
 Schauberger saw the fertilization of Earth by the Sun as a similar process to human fertilization. The Earth responds to the Sun's energy by releasing propagating energies (the concentric circles) which become more developed and complex as evolution proceeds.

interact alternate between attraction and repulsion, which sets up a pulsation which will vary according to the season.

In winter when the Sun's energy has the most blue and ultraviolet light and the Earth is passive, with low temperatures in the cold winter sunlight, the vegetation is dormant and much animal life hibernates. It is then that fertilization, reproduction and growth are at a minimum, but the solar energies continue to penetrate deep into the Earth to awaken the embryonic female energies lying far below the surface. This union produces the prolific growth of springtime.

In spring and summer however, when the Sun's radiation becomes relatively stronger, the balance between the ultraviolet and the infrared shifts towards the red end of the spectrum. This awakens the Earth, whose energy interacts with the Sun's high-frequency energy, producing a third kind of energy, which is dynamic growth. Viktor Schauberger saw this as the discharged precipitates of higher, bipolar subtle energy. In the summer months the solar energies fuse with their female opposites in the higher strata near the

surface of the Earth. This repeated process of impregnation results in an almost continuous flow of fertile energies emanating from deep in the Earth to stimulate burgeoning growth.

Viktor grouped almost all the known elements and their compounds, with the exception of oxygen and hydrogen, under the general classification of 'female.' The exceptions were silver, zinc and silicon, which were considered to have paternally-oriented characteristics, while gold, copper and limestone were regarded as more maternal (these will be discussed in more detail in Chapter 17). Schauberger used the term 'carbone' for all these elements, (the extra 'e' meaning more than just 'carbon'), because of the prevalence of various sorts of carbonous matter in the multitude of living organisms created in the body of Mother Earth.

The Sun's energy, of course, is regarded as male, and Viktor saw oxygen as a lower form of solar energy. Together, the role of the Sun and its assistant oxygen is to fertilize these female, propagative energies, the Sun being responsible for all of life, and oxygen for organic growth and development. To hydrogen, Viktor gave a special role, as the carrier substance of both oxygen and carbone (see Fig. 3.2 above). From a detached view, far outside the atmosphere, our planet, composed of carbonous matter and fertilized by oxygen, is indeed floating in the hydrogen gas ocean of space.

The words 'matter' and 'material,' both have their root in the Latin word *mater*, meaning mother, which supports the idea that physical substance is feminine in nature. Thus all the physical elements (except for oxygen and hydrogen) can be seen as the maternal progenitive constituents of 'Mother-Earth.' Viktor Schauberger visualized all physical structures and all new living entities coming into being through the union between these 'mother-substances' and the inseminating agent of oxygen.

## Polarities

Viktor Schauberger used to call polarity Nature's engine. He once described the harmonious interplay of the attraction and repulsion of polarized atoms as 'the dance of creation.' Electricity depends on the positive and negative charge of electrons. Magnetism expresses the polarities of attraction and repulsion. Polarities also apply in biological terms, of course, where balance is achieved between contrasting qualities, and of course between different sexes.

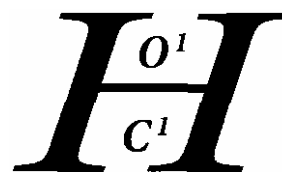


Fig. 3.2. Hydrogen symbol.  
Hydrogen as the 'carrier' of both carbone and oxygen.



Without the attraction and repulsion of atoms there would be no water, no plants, nor chemical compounds. The mutual attraction of 2 x H and 1 x O gives birth to the marvel of water.

We are more familiar with the terms 'positive' and 'negative' than 'male' and 'female' in scientific contexts; as, for example, with electricity. Of course, positive and negative in this sense are not judgmental terms, but opposite poles. Schauberger felt that to use the terms masculine and feminine was more in keeping with Nature, which he saw as a living organic system.

## Opposites working towards balance

We tend to think of Nature as being chaotic. The reverse is true. Schauberger discovered that Nature operates according to very strict laws. One of the most important is that concerned with the balance between energy polarities, each of which has its particular manner of expression. Masculine and feminine together make up a complete human being; one cannot exist without the other, and each needs the other to be whole. You might think that to be in balance, masculine and feminine energies need to be about 50/50, as they nearly are with the distribution of the human sexes.

For the last three thousand years or so human society has functioned in a predominantly masculine mode and is now quite out of balance. If you consider masculine energy to be represented by rationality, concern with the physical, forceful, expansive and individualistic; and the feminine by a tendency to be inclusive, intuitive, connecting and compassionate — then most will agree we need a swing of the pendulum towards the latter.

The natural law about balance is that it must be weighted towards the feminine for creative growth to proceed. Otherwise growth (in terms of higher quality) is arrested, and degeneration takes place. This applies to all the qualities, like:

matter and energy or spirit

chaos and order

yang and yin

positive and negative (not in judgmental terms, more electrical)

egoism and altruism

quantity and quality (a confusion of our present society)

And then in the more technical areas of life-building energies which we will cover in the relevant chapters:

gravitation and levitation  
electricity and magnetism  
oxygen and carbon  
centrifugence and centripetence  
negative temperature gradient and positive temperature gradient

What is the correct proportion by which the negative should dominate? Ancient Chinese society was very much taken up with these questions, and they believed the ratio of the correct balance was three-fifths (60%) to two-fifths (40%). Viktor Schauberg, who worked very intuitively, particularly on the temperature gradients in water, came up with two-thirds to one-third (66.7%). Callum Coats, who worked with Viktor's son Walter, a mathematician and physicist, related the proportion to the sacred geometric ratio of  $\phi$  (phi) which is 1.618, which gives the negative share of 61.8%.

The interaction and combination of opposites is found throughout all natural processes. It is true of heat and cold. The crucial interplay of heat and cold is found in many life-forms. Some types of fruit and seeds cannot germinate properly unless they have been exposed to frost. Brussels sprouts are best after the first frost! Growth is dependent on the right combination of heat and cold.

There is, however, no such thing as stable equilibrium, which would bring immobility and uniformity with which evolution would be impossible. Development and evolution in the dynamic Universe depend on an inherent imbalance, since movement is always occurring somewhere between one extreme and the other.

## Gravity and levity

Gravity is recognized as a powerful physical force in the Cosmos. However, Viktor Schauberg demonstrated that its opposite, levity, is tremendously important in Nature. That levity is not acknowledged by conventional science presumably has to do with its being one of these more subtle energies which are anathema to the reductionist mindset. Without levitation, fish would have great difficulty swimming upstream in a strong current, and we would not have majestic trees reaching for the heavens; only ground-hugging

species.<sup>2</sup> Levitation force may indeed be related to these female subtle energies spiralling upwards to the Earth's surface in their desire for fertilization.

Levitation has much greater potential power than gravity, much as suction does over pressure. Schauberger used this to great effect in his implosion machines, as we shall see later. Levitation can best be described as the life-force present in all healthy living things, particularly the more youthful, which gives a feeling of lightness and of relative weightlessness. It gradually weakens with age, so that the elderly become conscious of the weight of their bodies and the greater difficulty of movement. When this levitational force withdraws, so too does the life-force of the body.



## 4. Nature's Patterns and Shapes

The essence of the Gaia principle is that all life is interconnected. Nature is a conscious system in which all phenomena or happenings affect everything in their environment — the micro-environment for a small incident, or the whole world in the case of a major event. Life forms in Nature respond to each other by means of resonance; you might call it 'Gaia's glue.' When you say someone has 'good' or 'bad vibes,' you're talking the language of resonance; flowers attracting insects by their colour and scent, our response to certain kinds of music, the practice of feng shui in the home; monks chanting, bees humming.

Resonance is the language of communication and response. It is how energetic information is transferred from one object to another. It is also the mechanism of harmony. For example, the organs and cells in the human body vibrate each at its specific frequency, and in the healthy body they resonate in harmony like the different instruments of an orchestra. Water, as the principal constituent of and the bringer of life to all organisms, is the most powerful carrier of resonance.

### Sound as resonance

Every musician knows that a tuning fork of the note C struck in a concert hall will make any number of C tuning forks respond in the same space. When you rub your finger round the rim of a wine glass, its note will sound. If a singer finds this note, the glass will resonate in sympathy, or even shatter if the vibration becomes too strong.

Sound is probably the most ancient form of resonance in the human experience. Jericho was reputedly destroyed by destructive sound resonances. There are accounts in oral traditions of how early societies, such as the ancient Egyptian, the Tibetan and the Inca employed the use of sound to levitate enormous blocks of stone used in their buildings. Music itself is more than a paradigm of Nature's resonances. For millennia people have sung and played music to their crops, their lovers and their children. Schauberger

describes how the Alpine farmers while stirring the fertilizing liquid would sing into it (see p. 230).

Callum Coats cites:

Research carried out by Dr John Diamond in the field of behavioral kinesiology (BK), yields some interesting insights.<sup>1</sup> A member of the International Academy of Preventive Medicine, Dr Diamond found that while the deltoid muscle of a healthy adult male can normally resist a force of 40-45lbs, its strength is reduced to 10—15lbs through the negative effect of certain types of rock music, such as heavy metal and hard rock.<sup>2</sup>

In contrast to a more natural rhythm, where the beat emulates that of the heart, with emphasis on the first beat, i.e. DA-da-da or 'LUB dup rest,' as he puts it, in the above type of music this emphasis is reversed, i.e. da-da-DA, which conflicts with the body's natural pulsation and in poetry is known as an 'anapestic beat.' As Dr.Diamond states: 'one of the characteristics of the anapestic beat is that it is stopped at the end of each bar or measure. Rock music that has this weakening effect appears to have this stopped quality; it is as if the music stops and then has to start again, and the listener subconsciously "comes to a halt" at the end of each measure. The anapestic beat is the opposite of the dactylic or waltz like beat, which is DA-da-da, and in which there is an even flow.'<sup>3</sup>

Dr Diamond further asserts that:

these forms of music and unnatural rhythms cause switching in the brain's responses, which induces 'subtle perceptual difficulties' that may well manifest themselves in children as decreased performance in school, hyperactivity and restlessness; in adults as decreased work output, increased errors, general inefficiency, reduced decision-making capacity on the job,... in short, the loss of energy, for no apparent reason.

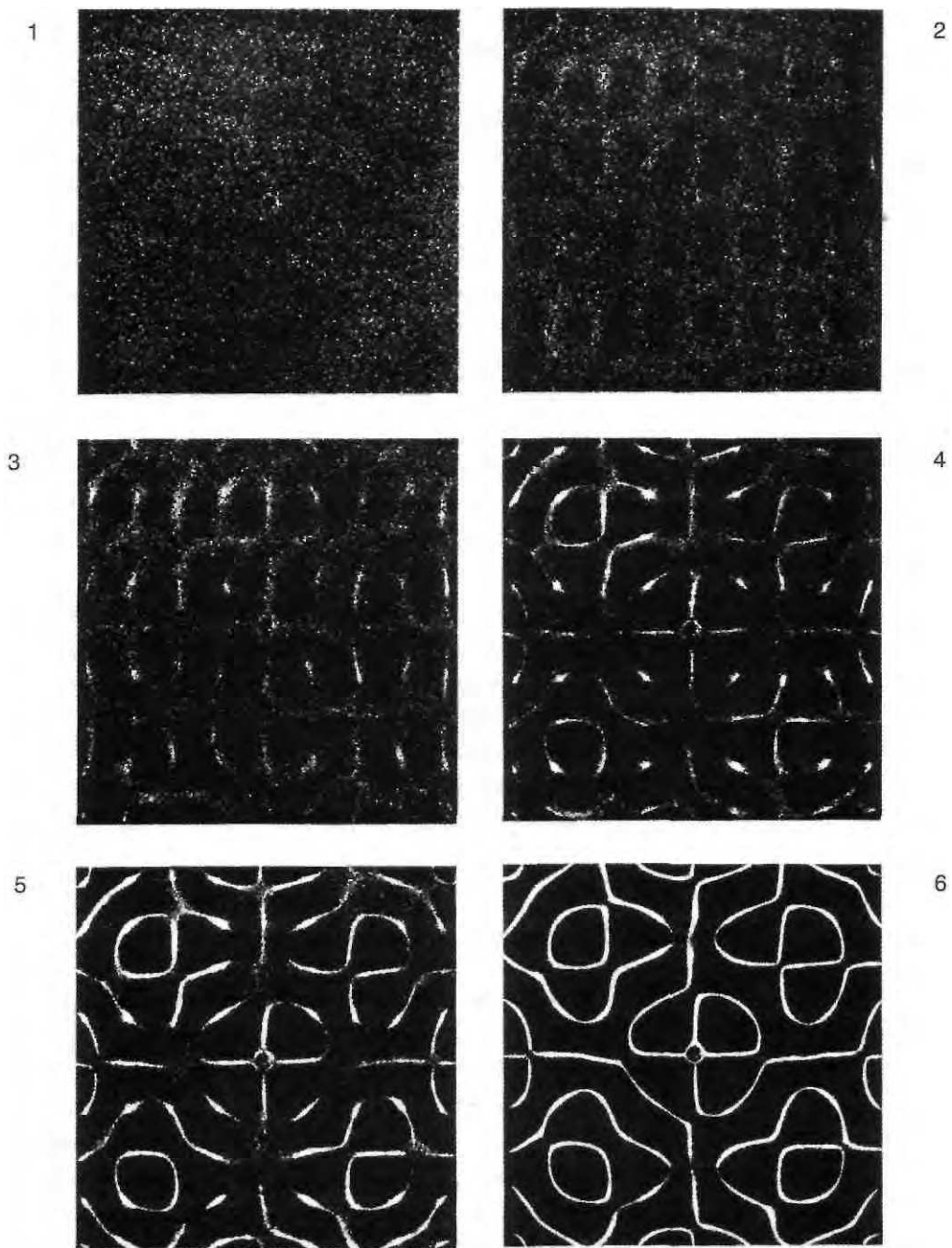


Fig. 4.1. Sonorous figure. The photographs show a simple sonorous figure taking shape under the action of crystal oscillators.  
Steel plate 31 x 31 cm; thickness 0.5 mm; frequency 1560cps. The material scattered on the plate is calcined sand.

Thus a given physical structure is created by an idea dependent on a particular frequency level or pattern of vibrations or resonances, higher vibrations producing higher forms and vice versa.

As we survey the world around us today this is precisely what appears to be happening — the quantitative thrust of our technology and ideology is pressing downwards towards uniformity, to a vibrationless state, which is equivalent to zero energy and quality (see Fig. 5.1, p. 78). Thus species after species is disappearing simply because the prevailing creative energy pool available for qualitative evolution is absent. If we may imagine that all that can be preserved is what remains, we forget that Nature has her own urge to proceed with evolution.

What is required of us is to purge our technology's production of so much debased energy. This would create positive feedback into human consciousness, raising its level, which would produce an outflow of positive, creatively potentiated energy, creating a swing towards the negative or feminine in society (see Chapter 3, p. 52).

An urgent swing from carbon-based energy production to renewable sources is vital if global warming is gradually to level off. Schauburger believed that this would help restore the energy balance towards Nature's need for dynamic evolution. But it is not the whole answer; only a radical change of consciousness so that we recognize our sacred role as part of Nature and begin to follow her laws can bring about a new way ahead for Nature and the planet.

## Resonance is about qualities

As we saw in Chapter 2, all matter, though it may look solid and stationary, is based on sub-atomic particles that are always in motion.<sup>4</sup> The velocity of this motion determines its vibratory rate; this and the type and size of the object contribute to its vibrational frequency. A piece of wood, and each of the organs in our bodies have different resonant frequencies; planet Earth has its own — a frequency of 7.83Hz (Hertz). Every thing, both animate and apparently inanimate has its own vibrational or resonant frequency that can be enhanced by sympathetic vibrations, or harmed by destructive.

There is increasing evidence of the harmful effects on human



health from the ceaseless bombardment of the body's very sensitive, electrically charged cells by the veritable salad of electromagnetic emissions from high-tension cables, radio, television, radar, microwave transmitters, etc.

A very tragic example of this was publicized by the media in the summer of 2001.<sup>5</sup> The navies of several countries, notably the US and Britain, have developed sonar technology for hunting submarines. This involves using massive blasts of sound up to 230 decibels which have been blamed for several mass killings and strandings of marine mammals, notably in the Bahamas in 2000 when at least seventeen Cuvier's beaked whales are known to have died.

Post mortem examination showed that sonar killed them through resonance, a process in which air bubbles in water can amplify sound waves by up to 25 times. When whales dive the air is forced out of their lungs into the tiny air spaces around the brain. Harmful resonance in these air spaces is believed to cause massive tissue damage and hemorrhaging, so that injuries can occur at much lower sound levels and over a much larger area than is presently acknowledged.

The rules that the US navy scientists follow are based on old-fashioned physical science which puts the safe noise level below 180 decibels, and the safe distance below 2.2 km (1.4 miles). There is now evidence that resonance effects could injure whales up to 100 km (62 miles) away.

## Plants have perception and memory

Cleve Backster was a former CIA interrogator who trained police in the use of the polygraph, or lie detector. One of their techniques was the use of 'threat to wellbeing' to evoke emotionality in suspects. In a spontaneous experiment, he attached the electrodes of the instrument to a plant. In considering what a plant would regard as a threat, he thought of applying a burning match to a leaf. Without even moving, only his thought alone triggered a strong response in the plant.<sup>6</sup>

Subsequent experiments, which were then widely repeated by different researchers, showed that plants are able to communicate or 'resonate' their shocked or pleasurable experiences to one another. Backster describes how he tried to block whatever signals

#### 4. NATURE'S PATTERNS AND SHAPES

were being passed between plants with a variety of complex screens, without success, suggesting that their signals are outside our electromagnetic spectrum. One of the hazards of this research is that unless the researcher is truly aware of his/her own emotional states, these can confuse the results. Perhaps every scientist who wishes to produce 'objective' results should go on a course to make him/her more aware of their prejudices! There is probably no such thing as truly objective research. (The same could be said for anyone whose work brings them into a role influential with others.)

Backster's best known experiment excluded the human factor. Live brine shrimps were dumped in boiling water automatically at pre-determined intervals, near the plants which reacted 'emotionally' each time the massacre took place. Not only do plants respond as if they had a nervous system, but they also exhibit a capacity for memory. As we shall see later, water also has this memory facility. With specially adapted equipment, 'emotional' reactions have also been monitored from amoebas, blood samples and cell cultures. Experimenting with fertilized eggs, it was found that when one egg was broken others, even in the next room, responded with shock.

Societies with ancient roots still celebrate this knowledge, as in the kosher quietening rituals, prior to the sacrifice of animals, or in the blessing of crops before they are harvested. This is more than consideration for the sacrifice, for it also recognizes that the food thereby retains higher vibrations and is more beneficial for human consumption.

## Cymatics

One of the first to convert vibration into visible form was an eighteenth century German physicist, Ernst Chladni, who found he could influence patterns of sand scattered on a steel disc by playing different notes on a violin. This was developed last century by Hans Jenny of Zurich, using sophisticated equipment with liquids, plastics, metal filings and powders.<sup>7</sup> He then vibrated the discs at ascending pitch, and found that the harmonic patterns that appeared at different pitches formed a variety of organic shapes: spirals of jellyfish turrets, concentric rings of tree growth, tortoiseshell patterns or zebra stripes, pentagonal stars of sea-urchins,

hexagonal cells of honeycombs, etc. The higher the frequency, the more complex the pattern. Jenny also produced a stunning film which shows that raising the pitch of sound caused a static pattern to change into a moving one.

All of these were, of course, the same geometric and vortical forms which underlie the ordering of physical matter; thus 'inorganic' matter vibrated simply with sound produces 'organic' shapes. But what is intriguing is that the sand collects on the 'dead' areas of the plate, for the 'life' of the pattern is vibrating on the background that is free of sand. The paradox is that the visible expression of energy is the inverse of the actual vibratory pattern, which is invisible. Organic growth and development require harmony. Resonance is the process by which harmony is brought to lower systems which then provide a firm basis upon which higher structures may be built.

One is reminded that the early Christian Gnostics insisted that the physical world is but a shadow or shell of a supreme ordering energy that exists in another dimension. Schauberger also saw the physical form like a discarded mantle or energetic detritus, the creative energy of the fifth dimension having been spent. Callum Coats saw the resonant pattern associated with a life form as the seed bearing the image or idea of what is to be created. He argued that all physical manifestation develops as the product of focused energy from the 'Will-to-create' or original 'Source.'

## Patterns and shapes

Patterns are to do with order; with design and structure. Nothing can come into being without a design or template. The patterns in Nature are governed by laws that oral tradition tells were the gift of the gods (perhaps a rationalization of a chicken-and-egg situation!). Holistic or spiritual science sees Nature as a mirror of the original creative impulse in the Universe, a manifestation of the Universal Mind, or The-All-That-Is.

Our science, since the Renaissance, has been searching for immutable Laws that help to explain how the natural world works. Because the territory it observes is limited to the physical, conventional science rejects the idea of a cosmic order that affects the Earth and its inhabitants at a subtle energetic level, which frustrated Schauberger. He demonstrated that a new science that has more in common with ancient wisdom does show how the world

### 4. NATURE'S PATTERNS AND SHAPES

is subservient to cosmic laws, creating 'correspondences' between the two orders.

Until comparatively recent times, scientists and philosophers recognized the creative energy of Nature as sacred. They saw the way in which Nature's patterns and its complex interdependences were so often expressed in very specific shapes and numbers as proof of God at work. So they called these correspondences sacred numbers and sacred geometry. It is certainly difficult to explain away the complex mathematical and symbolic patterns in Nature as purely accidental or fortuitous (see below, p. 66).

## Patterns in motion

In the beginning was the vortex<sup>8</sup>

All life is motion. Natural movement is not in straight lines, but in spirals, or in spiraling vortices. Spirals are the actual shape of fluid energy evolving order from chaos. Viktor Schauberger saw them as the natural movement of life, from the structure of galaxies down to the atom. The spiral is the most common vehicle for 'correspondences' — as above, so below.

The spiral can develop in a number of different ways: as a vortex, moving upwards or downwards, round in a circle, or doubling back on itself. Whenever there is movement, spirals form, visibly with water; but gases and even electrical fields express themselves in spirals or doughnuts. Sinews, tissues, blood and bones and so many formations in organic life are spiral in form.<sup>9</sup>

## Rhythms within the solar system

The relationship between Earth and Moon can be very subtle. Professor Frank Brown of Northwestern University has shown how the 'biological clocks' that initiate cyclical activities like rat-running, and colour change in fiddler crabs are subject to lunar rhythms. His better known experiment involved the shipment in hermetically sealed containers of oysters from the sea shore at New Haven, Connecticut to Evanston, Illinois, 2000 miles inland. Within a couple of weeks they had adjusted the conspicuous rhythm of opening and closing their shells to the lunar tides that would have existed at Evanston had it been on a sea coast.



The terrestrial environment is teeming with electromagnetic phenomena and their secondary effects, which are demonstrably related to greater events in outer space. Dr Harold Burr of Yale University kept extensive records of the voltage changes measured in holes bored in the trunks of trees. When both ends of a wire were inserted into two holes vertically a yard apart, an electrical current could be detected moving either up or down, at different voltages, in regular cycles that were not related to the Moon's phases, but to some other unidentified non-terrestrial source. His records showed that all trees, even hundreds of miles apart, would simultaneously experience the same changes of the voltage and direction of the current. It is as if the whole family of trees responds to the same electrical rhythm, like a cosmic breathing.<sup>10</sup>

It seems that there are universal laws, not yet fully understood, which guide an organism's growth into predetermined patterns. As the vehicle for creative energy, the spiral is clearly involved in the organic growth of plants and embryos. Buds contain all the concentrated energy of the future plant, and their mathematical analysis can yield clues as to how this formative energy is expressed. Rudolf Steiner, the founder of Anthroposophy, initiated these studies, which have been developed in great detail by the projective mathematician Lawrence Edwards.<sup>11</sup>

Edwards discovered that tree buds expand and contract in a curious rhythm, specific to the species. He applied Steiner's theory that a species often has a particular connection to a planet. Steiner suggested correspondences between particular trees and flowers and certain planets, for example, the oak with Mars, and the beech with Saturn. The results clearly showed that these bud pulsations are linked to the cycles of particular planets. The Moon on its own had little effect, but when amplified by an alignment with Saturn (for the beech) and to Mars (in the case of the oak), showed unmistakable fortnightly rhythms. There was one beech tree studied that did not show these phenomena. It was found to be growing a few yards from an electricity supply substation!

## The confrontation of two geometric systems

Schauberger was at odds with scientific rationalism. He described our prevailing Euclidean geometric system as 'techno-academic.' It

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is essentially a controlled, closed system whose elements are the point, the straight line, the circle and the ellipse. This system dominates the contemporary worldview and mindset and is incompatible with Nature.

In more traditional communities, the hard, straight lines of structures were often softened with decorative embellishments, such as are still found on the eaves or rooflines in some Alpine villages. In the last century, ornamentation has been stripped away in architectural design and we are left with buildings that present a naked angularity and sterile uniformity (of agricultural monoculture).

Until modern times the Chinese rejected the Euclidean model. Their building designs were informed by geomantic principles that recognized the straight line as the path of the dragon, the personification of destructive energy. This energy could be tamed by making it flow into curves and spirals. The Chinese understood in those days that straight lines fostered disruptive behaviour. Perhaps it is time to consider what a deadening effect the boxes we inhabit may have on our thoughts and emotions; of how our dependence on the straight line may cause us to behave.

Nature's system is non-Euclidean, open and dynamic; its elements are open spirals forms, shell, egg and vortical forms. This facilitates a fluid and adaptable environment, one in which forms are able to evolve into more complex and creative arrangements. Other creatures, whose sensitivity is nourished by the subtle energies of open forms, make use of roundness and curves in their nests, burrows, and shells. In order to arrest the downward spiral of our culture, we must take note of systems that encourage creative change (see Fig. 5.1, p. 78). Schauberger wished that we could remember that we were created as part of the organic processes of Nature, rather than the mechanical processes that we have adopted.

## Sacred geometry

Viktor Schauberger saw patterns and rhythms as the heartbeat of the Universe, and was fascinated by the traditional use of the language of number and form to codify how they are repeated and in what form. It is hard for us, schooled in a rationalist worldview which separates form from the natural order to see that they are

part of one whole. The ancients regarded mathematics and geometry as the tools to understand patterns in Nature and in the Universe. The religious leaders of old, who were also the scientists and mathematicians, did not make our mistake of putting different phenomena in separate compartments. To them, the world of matter and reason and the world of spirit and the awareness of God were all one. In the context of myth and symbol, they used numbers and forms in a way that would satisfy the spiritual sense of meaning and the scientific need for structure and reason. Out of this process arose the traditions of numerology and sacred geometry.

In all the ancient cultures, the square symbolized the Earth of matter and rationalization, and the circle the encompassing world of spirit and feeling. How to bring them into balance was called 'squaring the circle' and was the pursuit both of architecture and philosophy. The sum of the sides of the square was equal to the circumference of the circle, so they come into harmony by enclosing the same area. This is sometimes used as a metaphor for the balanced personality. So 'circling the square' indicates someone whose rationality is greater than his/her sense of feeling.

As with other problems in sacred geometry, though it is not possible to draw this relationship by simple measurement, because it is part of the natural order, that is where the solution is to be found — in fact in the relationship of the size of the Moon to the size of the Earth.<sup>12</sup> You draw a square around the circle of the Earth (each side of which will equal the Earth's diameter). Then you draw the Moon on the same scale, sitting on top of the Earth. A circle with its centre as the centre of the Earth, and its circumference passing through the centre of the Moon will have a circumference equal to the sum of the sides of the square enclosing the Earth.

Fig. 4.2 also contains the 3-4-5 Pythagorean triangle which connects the corners of the Earth and Moon squares. It was from such relationships that the 'Pythagorean canon of proportions' was created. The basics of musical harmony depend on intervals created by these divine proportions. There were canons of architecture, of painting and of musical harmony taught in the medieval mystery schools, and partly revived in the Renaissance.

Fig. 4.2. Squaring the circle. Sacred geometry is based on observations of cosmic relationship. The Great Pyramid's base straddles the Earth's equatorial diameter; its apex is at the centre of the Moon, which is in true proportion to the Earth, and held to the square by a Pythagorean 3-4-5 right-angled triangle.

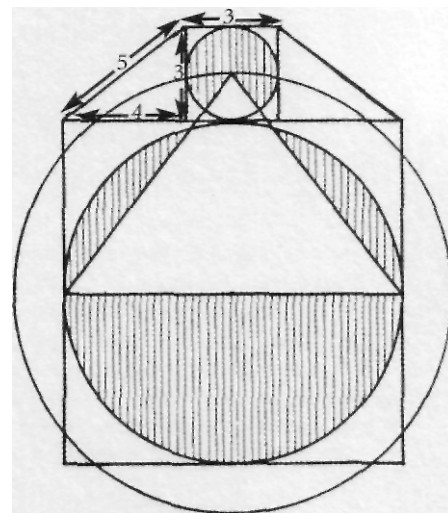
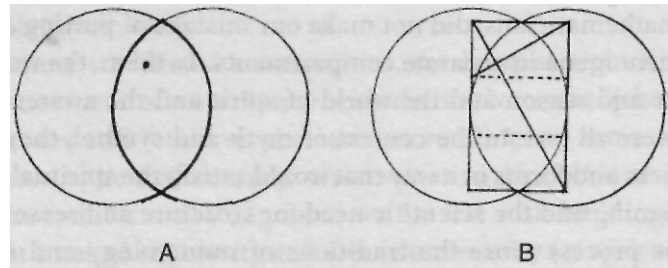


Fig. 4.3. Vesica piscis.

'The Vessel of the Fish' is the simplest and most informative geometrical symbol, being the orifice of two interpenetrating circles which inspired the master masons of the medieval cathedrals. Many Christian symbols, including the fish and the bishop's mitre, have been derived from the vesica. On the left is the fish, whose eye corresponds, on the right, to the geometric 'eye' of the  $\sqrt{3}$  rectangle enclosing the vesica.



## The golden mean

The search for perfect proportion, a shape for containment that is aesthetically pleasing, led to the discovery of the 'Golden Mean' or  $\sqrt{3}$  rectangle. The square is too mechanical, a long rectangle too awkward. The shape that 'seems' to be just right is a square rectangle with the proportions 1:1.618. This turns out to be the magical proportion favoured by Nature in her designs. A series of these, reducing in size, form a perfect spiral, like the nautilus shell (Fig. 4.4).

Spiral forms often display a similar 'sacred' proportion of 1:1.618; numbers in the Fibonacci series, for example, which maintains the Golden mean proportions indefinitely, and dictates the beautiful spirals in a sunflower head, Nature's ingenious way of packing the maximum number of seeds into the head.<sup>13</sup> An intriguing form that arises in Nature, either on its own, or as part of a more complex form, is the vesica piscis (Fig. 4.3). It is the feminine principle of generation from which spring all other geometrical forms, from triangles, squares, polygons, to Golden mean rectangles, which abound in sacred architecture.

All the traditional arts and sciences were based on the same cosmic truths expressed in number, and the sacred numbers were the ratios in a revealed world order, drawn from the experience of mystics and confirmed by precise measurements of the solar system. Sacred buildings from Stonehenge to the Temple of Solomon,



ancient Egyptian paintings, the works of Michelangelo, all have their magical effects and power over human consciousness attributed to the use of these divine proportions.

The Middle Ages were a time when the physical and the spiritual were completely intertwined, but our histories, based on the rational 'Enlightenment' worldview, regard those centuries as a time of ignorance and deprivation. In fact they were seething with creativity and inspiration: thus the Gothic cathedrals which relied more on an understanding of correct proportion than on reasoned engineering skills. Medieval musicians were fascinated that if you divided an open string by whole numbers, you can get notes that are in exact proportions.<sup>14</sup> They rediscovered the miracles of harmony, and easily accepted them as Divine. This may be the reason for the extraordinary beauty of medieval chants.

## The magic of the egg form

We noted in Chapter 1 that Viktor Schauberger was one of a breed of innovative natural scientists who are able to immerse themselves so deeply in direct perception of the natural world that concepts or theories spontaneously emerge. But his intuition also would bring up ideas directly. An example of this was his discovery that Nature

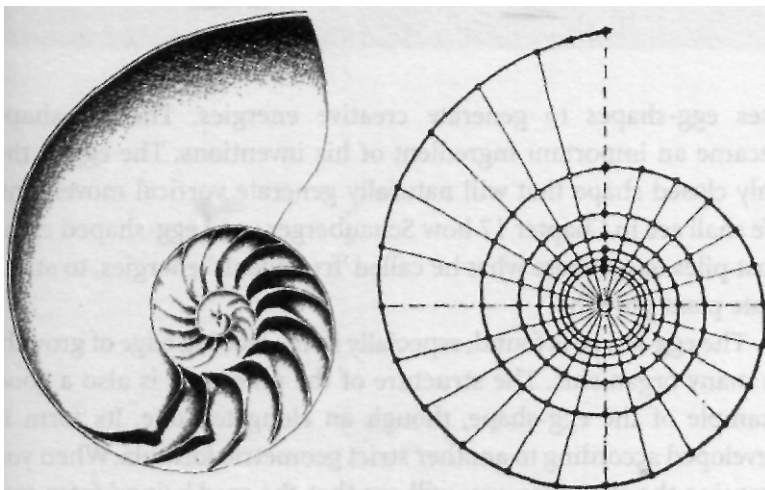


Fig. 4.4. Snail shell & hyperbolic spiral. The spiral of the snail compared to a similarly-shaped hyperbolic spiral (right), a non-Euclidean open system whose constantly changing curvature is based on very precise geometry.

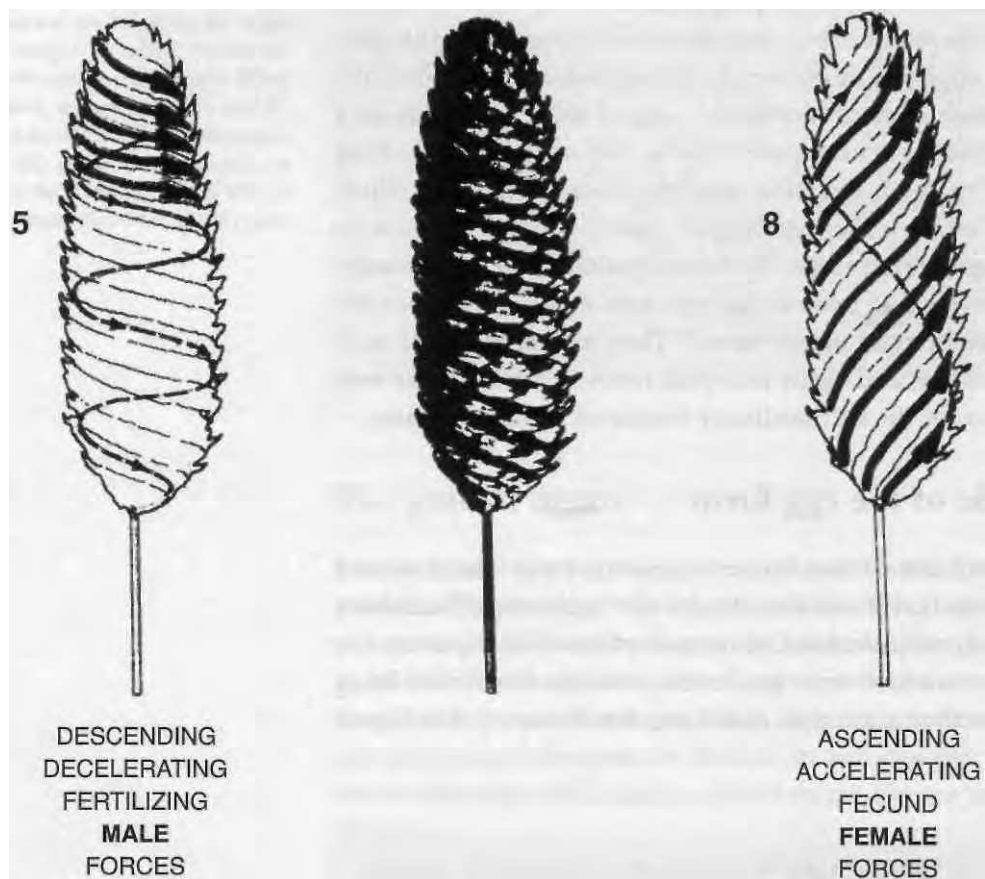


Fig. 4.5. Pine cone symmetry.

The left hand cone shows the five decelerating, positive male spirals of energy descending to meet the eight accelerating, rising negative female spirals. Where they cross each other, a union of the two forces produces a seed of new life. This illustrates how two antithetical, but oppositely charged forces can interact harmonically and be in balance.

uses egg-shapes to generate creative energies. The egg-shape became an important ingredient of his inventions. The egg is the only closed shape that will naturally generate vortical movement. We shall see in Chapter 17 how Schauberger used egg-shaped compost piles to generate what he called 'fructigenic' energies, to stimulate plant growth.

The egg-shape is found, especially in the leading edge of growth, in many organisms. The structure of the pine cone is also a good example of the egg-shape, though an elongated one. Its form is developed according to another strict geometric formula. When you examine the structure, you will see that the seed 'wings' form two opposing spirals. Moving from left to right (anti-clockwise) the

HIDDEN NATURE

descending (male) spirals complete three revolutions in the wavelength of the cone; the eight ascending (female) spirals, rising to meet the male, are slower moving, completing only one revolution in the cone's overall length. Where the male and female spirals intersect, a seed is born.

This relationship (proportion) of 5:8 is the signature of the 'Golden Section,' known also by the Greek letter phi ( $\Phi$ ), which resolves into the ratio 1:1.618033988. Phi — and pi ( $\pi$ ), the transcendental number that describes the circumference of the circle, are called 'divine proportions.' Many of Nature's forms depend on phi for their generation, as it is one of the vehicles for transforming energy into form. By varying the length of the radii from the centre growth point (the radius length being determined by phi), a large variety of natural spirals and leaf shapes can be created.

## PART TWO



## How the World Works



## 5. Energy Production

### The inefficiency of modern technology

Why are the accepted methods of producing energy so inefficient? Far more energy in terms of fuel must be applied than is produced, in most cases more than twice. This has up to now not been of concern, as fossil fuels have been regarded as unlimited and free for the taking, and still are by most, though there is more discussion now of sustainability. The main argument for reducing their use is that their consumption produces CO<sub>2</sub>, the principal source of global warming.<sup>1</sup> A power source is now regarded as unsustainable unless, as for example with solar panels, it is renewable; it does not take from the Earth without giving back.

To compare the efficiency of modern technology with that of the human body is illuminating. Walter Schauberger (Viktor's son) calculated that a typical car on a journey of 1000 km (621 miles) consumes as much energy as a human being uses in a whole year. In an 11 hour journey, the car has consumed one human being's annual oxygen requirement. To replenish the oxygen consumed by the world's motor vehicles annually requires healthy forest covering 28% of the world's land area, far more forest than our present, and dwindling, forest cover.<sup>2</sup> There is alarming evidence that the amount of free oxygen in our atmosphere is actually reducing. This comes from an analysis of air captured in bubbles in ancient glaciers in Antarctica as well as in amber.

Using the famous Hasenohrl-Einstein equation  $E=mc^2$ , Walter Schauberger calculated that the amount of energy stored in 1 gram of material substance (e.g. flesh, wood, water) amounts to 25 million kWh.<sup>3</sup> The challenge is how to unlock this source of energy. Viktor Schauberger once said: 'More energy is encapsulated in every drop of good spring water than an average power station is able to produce.'<sup>4</sup>

Schauberger observed that Nature's methods of producing energy were far more efficient, which led him to design implosion machines for natural energy production in the belief that they would solve the crisis of modern technology.

## Entropy and ectropy

James Lovelock proposed in his Gaia hypothesis that Nature (for his mathematical model he used the name 'Daisyworld') regulates the Earth's energy balance through natural feedback mechanisms to suit the evolution of life forms. All energy used by living and non-living systems eventually degrades to irrecoverable waste heat, or disorder. All our physical processes lead to entropy. Nature made use of this to create the greenhouse effect, by which increasingly complex life forms were introduced into the biosphere as the climate was gradually modified.<sup>5</sup>

Entropy or disorder has been recycled by the Earth's greenhouse effect for millions of years. Every time we walk a pace forward, respiratory processes in the body burn a little ordered carbohydrate to power the muscles of our legs, and some disordered waste heat has been lost without trace from the surface of the body. Every time a simple bacterium moves a milli-millimetre it releases a few micro-calories of disordered heat waste. But every time a jet plane cuts its way through the stratosphere it leaves behind a massive amount of irrecoverable heat that disperses into the planetary heat sink in total disorder. It is all a question of degree. We are now increasing entropy to an unsustainable degree that is decimating life on the planet.

The Earth environment provides an extremely narrow temperature range compared to the extremes found in the Universe. Growth and development of life forms require moderate temperature conditions, as large or abrupt changes are harmful to most organisms. Our warped technology has made us used to very high temperatures; we produce power through combustion and hot fission. Most of our manufacturing processes require excessive heat and high pressure. We create chemical compounds using the coercion of heat and pressure. Technical man can indeed produce a high degree of order in one place, but in so doing he creates a much greater amount of disorder elsewhere.

## Scientific 'laws'

Scientific laws are fairly reliable general statements about particular events under specific circumstances. The Second Law of Thermodynamics, for example, which states that all closed systems must

generate into chaos without input of energy to maintain the ordered state, is thought to be inviolable. Schauberger, by demonstrating that energy could arise spontaneously in his 'perpetual motion' machines, or that frictionless movement could be achieved, disproved this axiom.

Due to the remarkable feedback systems of the atmosphere and the biosphere, temperatures on Earth are kept within the narrow band of those required for abundant life, especially of higher life forms. Gaia research has shown that it is life itself which has fine-tuned that thermostat, so that more complex life forms are able to develop. Some species live within small microclimates, so that on one tree you can find several kinds of finch, each having its own niche.

Humanity is considered to be the most adaptable of species, able to survive in a range of about -10°C (14°F) to +40°C (104°F). While that is true for the species, it is not true for individuals, unless you believe that individual physical health and spiritual wellbeing are stronger than they have ever been. One of the requirements of Nature is that, in order to be whole, we have to be in tune with our environment. It takes many generations of adaptation to a specific environment for people to develop fine physical qualities and sensitive psychic faculties. Similarly it takes generations to adapt safely to a change in the environment (for instance, as a result of global warming or microwave radiation). In the past two hundred years our bodies have been challenged to adapt to higher temperatures and in the last sixty to stressful microwave energy.

Compare this to the efforts modern humans take to accommodate a life divorced from Nature, to jet travel life and unnatural food, and one subject to enormous electromagnetic stress. We take mountains of pills to counteract physical and emotional imbalances or go to psychotherapists to assuage our spiritual starvation. While he does not suggest returning to primitive life-styles, Schauberger assures us that, while our lives are now completely out of balance, by following Nature's clues we can regain both equilibrium and sanity.

## Energy pollution

We usually think of pollution in physical terms, like a room full of tobacco smoke, or a factory's chemical effluent poisoning a stream. This is the boundary for conventional science. Thus when people

### 5. ENERGY PRODUCTION

raise fears about the safety of microwave ovens, radar transmission towers, mobile phones, the official response from scientists is inevitably, 'there's no evidence that they are any danger to health.' Naturally, cynical collusion between government and industry only strengthens this misguided view in order to discourage public protest or lawsuits.

Viktor Schauberger brought a further dimension to the concept of energy pollution. He understood that the creative process of Nature is consistently to refine, to diversify and produce higher forms of organic systems — to use a metaphor from human experience — to raise consciousness (consciousness as integration of higher levels of connectedness). He distinguished three forms in which subtle energies perform these upwardly evolutionary functions, which in the last chapter we called dynagens, fructigens and qualigens.

They are produced, as we shall see in the chapters that follow, through the specific forms of motion and temperature that Nature designed for the purpose of evolution. If I were in a court of law, it is these complex processes that I would cite as evidence for meaning, purpose and above all, intelligence in Nature. Schauberger described these 'enlightened' control systems thirty years before Jim Lovelock and his colleagues proposed the Gaia theory of intelligent self-sustainability in Nature, and in the area of evolutionary energies, went far ahead of them.

The blocking of these creative energies by the emanations from modern technological processes Schauberger saw as the most dangerous form of pollution. Their heat, pressure and, above all, chaotic effects actually destroy the more delicate energies of Nature's constructive developmental processes. Thus, chemicals invading a stream not only make it dirty and smelly, but they also destroy the complex structure of the water, so that it can no longer behave like healthy water, but literally dies (see Chapter 11).

This form of pollution has an evolutionary as well as a health effect on people. Schauberger suggested that this explained the well-documented degeneration of intelligence and the increase of violence in industrial communities. Dr Weston Price, studying fourteen isolated indigenous communities around the world in the early 1930s noted this in the effect that changing from their slowly evolved local diet to a western-type diet had on these people (for food is energy medicine!).<sup>6</sup>



We don't know how much energy pollution from anti-Nature technology affects the environment in general. Logically it should be most prevalent near power stations, large factories and the like. However, when rivers, which are the arteries of the blood of the Earth (see Chapter 11), and normally transmit energy to the surrounding countryside, are turned into 'lifeless corpses' (as Schauberger used to say), what effect will this cadaverous energy have on the environment? Clearly, if humanity is to reverse the downward devolutionary spiral, our first priority must be to change over to Nature's energy systems.

## The choice before us

Humanity lived a relatively natural and sustainable lifestyle until fairly recent times. The growth of industry and its massive demand for energy resources has introduced increasing degrees of instability. Going back over 2000 years, but much more clearly in the last 350 years, it has been possible to chart a different kind of development which has brought with it a deterioration of the natural environment, increasing disorder and inefficiency.

Callum Coats shows this divergence of the two systems in the accompanying chart (Fig. 5.1). In the last 150 years with rapid industrialization, a scientifically based technology developed, and the divergence shown by the lower curve has become dramatic, with dire consequences for the environment.

By contrast, the curve rising up toward 'ectropy' shows how natural evolution builds more complex systems with more evolved species on the foundation of earlier ones. This is how biodiversity increases. The appearance of new species requires a surplus of evolutionary energies deriving from the improved conditions of interdependence. It is as though the growth in natural capital from the sound economy of evolution produces interest or surplus energy from which new life forms may be formed. Nature's system is so economical that little is wasted. The many seeds, nuts and fruits which sustain all the currently existing life forms, can be seen as the surplus on Nature's interest.

The mineral resources of the Earth, which are Nature's base capital, should never be used. As we shall see in Chapter 17, Schauberger illustrates how they are essential building blocks in the production of formative energies. The indigenous people understood their

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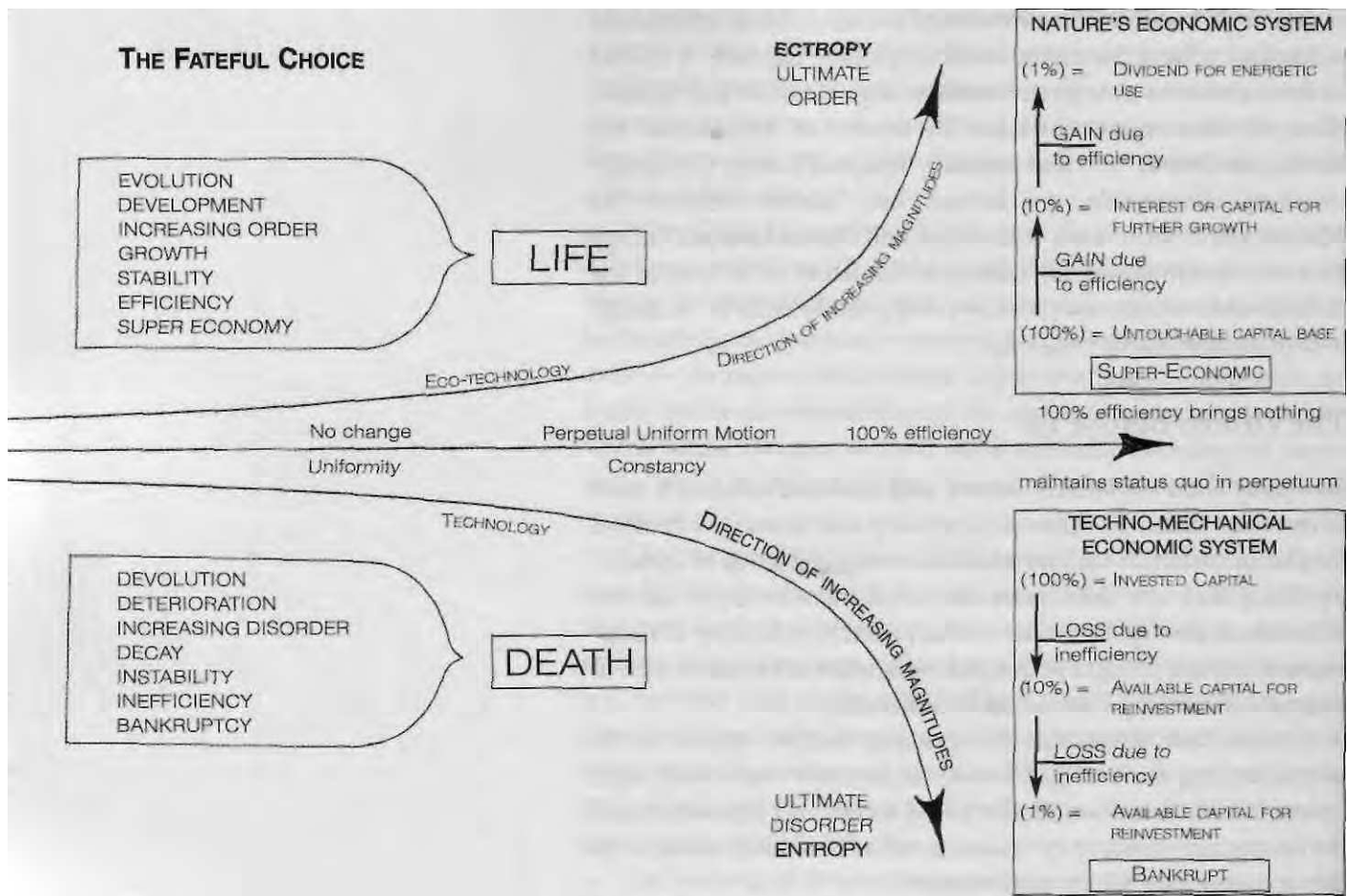


Fig. 5.1. The fateful choice.

importance. Mineral-rich lands are for them energy-enhanced areas that they regard as sacred.

Nature has to increase her capital by say 10%, to allow for growth, movement, and evolution of new life forms. To live sustainably is to live off Nature's surpluses (such as the careful harvesting of trees under properly controlled mixed forest management). The increasing diversity of evolving Nature brings more stability and the ability to withstand temporary setbacks (Fig. 5.1).

The centre line in Fig. 5.1 represents 100% efficiency. This may seem the best direction, but it is not the answer. It is undynamic, like circular motion. Its uniform condition means it never increases or decreases. Above all, the purpose of Nature is to seek movement, change and evolution; she despises stasis and uniformity.

The lower curve represents the path on which we are at this

HIDDEN NATURE

time. The use of energy is improvident and wasteful, replacing diversity with mass production for quick return, which Nature cannot tolerate. Where once rich forest flourished, with a wide diversity of interdependent species of trees and animals, there exist now only monocultures. This requires enormous, hedgeless fields where only one crop is grown, dependent on fertilizers that slowly destroy the living humus; they become monotonous environmental wastelands. Gone are the high yielding, organically nourished fields surrounded by windbreaking hedgerows teeming with birds, small animals and wildflowers. The frequently reported notices of endangered or newly extinct species bear witness to this ebbing biodiversity.

What Schauberger calls the 'techno-mechanical economic system' produces a downward curve, accelerating as unnatural systems of energy are applied more widely. Pollution apart, these systems are clearly inefficient. In the 1970s, Walter Schauberger discussed industrial efficiency with Dr Fritz Kortegast, head of research and development at Mercedes-Benz in Stuttgart, who confirmed that at that time the propulsive energy produced by their most sophisticated engines was only 13% of the total energy introduced, the balance consumed as dissipated heat and pollution. A business this inefficient would soon fail.

The truth is that our techno-mechanical economic system is created by vested interests that consume energy through the massive exploitation of non-renewable resources. It must be clear that the ultimately such unsustainable technology can produce only economic collapse, social chaos and environmental deterioration. The disorder and decay that we are witnessing come from our dependence on an energy system that is self-destructive. In this system, an investment of \$100 produces \$13, which in turn would produce only \$1.69.<sup>7</sup>

## Energy defines quality

Convinced that we are the pinnacle of life on the Earth, we humans are actually destroying the very basis of creativity on the planet. It is the diversity of Nature that supports our place in the biosphere. The ongoing extraction of oil, coal and other minerals, deforestation, overfishing, and the continual loss of animal and plant species threaten our very existence. It is well accepted that only inferior

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kinds of fish can live in poor quality water. It is no different for people. By allowing the natural resources of the environment to depreciate, the quality of human potential inevitably suffers.

Conventional science does not understand the importance of quality. For the reductionist scientist water is water, or a genetically engineered crop is the 'substantial equivalent' of a conventional crop. No two things can be identical in Nature whose processes depend on constant change and transformation. While quantitative science states that  $1 + 1$  makes 2, no two natural systems can ever be equated.

Monocultures and mass production mean repetition. They repeat an energetic or experiential process that has already happened, in which no new development, no advance, however slight, is possible. Identical repetition goes against evolution, because it wastes energy. The development of a new natural process or system demands change and variety.

George Gurdjieff, the Caucasian mystic and teacher, used to say that the ordinary person operates like a blind machine with no awareness or consciousness. Viktor Schauberger saw contemporary humans as superficial creatures that look, but never see. Our seeing is limited to recognition, not deep examination. We mistake outward appearance for totality, effect for cause. What we actually see are the external shells of manifestation, what is left by the formative energy. We don't see the energy that created the organism.

## The creative energy-vortex

Callum Coats illustrates the process of the creation of matter in the diagram (Fig. 5.2). As we have seen, creative energy moves spirally in the form of a vortex. The creative process takes place as the energy containing the blueprint of what is being created moves in whatever way it needs to in order to create the system it wishes. It draws down matter as a mirror image of the idea or blueprint. This is why the physical is said to be the shell of the organic reality.

What we have described is the formative energy. There is also the sustaining energy, the Ch'i in Chinese terms, which moves in the same way. This is the way a healthy river moves; and the blood in our capillaries, external manifestations of an energy path. We



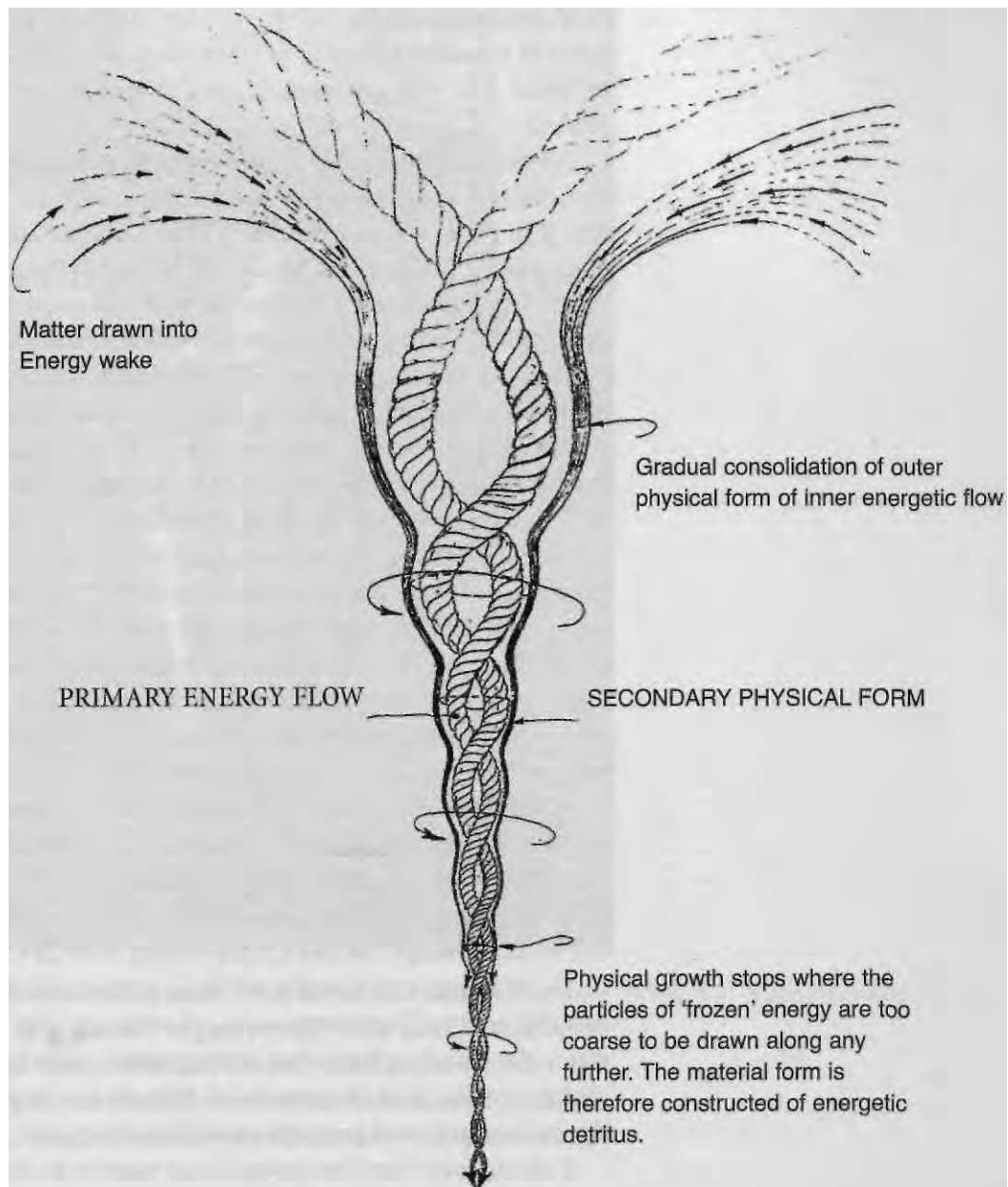


Fig. 5.2. Energy and form.

In the beginning was energy; it is primary — the cause; it creates the form in which it wishes to move; the form is the mirror of the energy — the secondary effect.

see the blood, but we don't see the energy that pushes it. What is visible in blood is the matter that is too coarse to be taken to the final destination of the energy. Energy manifests how it wants to move in the most efficient way. It is as if, when we build a house, we build it to suit our lifestyle, one in which it is easy to move around.

All natural systems are mirrors of their pattern of energy, or of the 'idea' that sought to create them in the first place. When the system is in place, the energy from which it originated is rejected as matter being too coarse to be carried further in the energy stream. Viktor Schauberger used to describe the Earth as a huge dung-heap, saying that all living things were the result of waste matter ejected by the creative energies moving in a certain way, and which were unable to continue transporting the material further.

Put simply, it is only those energies that remain immaterial that contribute to an increase in life-force, while the remaining energetic material is expelled as waste, just like daily human defecation. There are subtle nonmaterial energies in the food we eat, which are used to produce thought processes and metabolic functions. The human body is like a energy path containing a complex vortex which transforms the energy of matter into intellectual and physical actions. It is therefore axiomatic that the quality of our functions is dependent on the quality of the energy that we ingest. Viktor Schauberger campaigned for high quality nutrition and water.

So, physical manifestation depends on the movement of energy. All of Nature's creations that we observe are the outward shell of the formative energy path. Schauberger used to say that a tree will grow only to the height to which the energies can draw up the physical mass, although the tree's main energy body lies above it.

He demonstrated that the vortex is the natural form of movement for energy. The accompanying photograph (Fig. 5.3) well illustrates the spiraling form that water prefers. Each of the twists is slightly smaller than the one above. Viktor's son, Walter, calculated the mathematics and proportions of this structure.<sup>8</sup>

Callum Coats used the action of our weather to demonstrate the importance of the vortex in creating material substance. The spiraling air masses possess very little density, very slow rotational velocities and a large radius of influence. When these air masses converge, they gain in speed with the reduction in their radius of rotation.

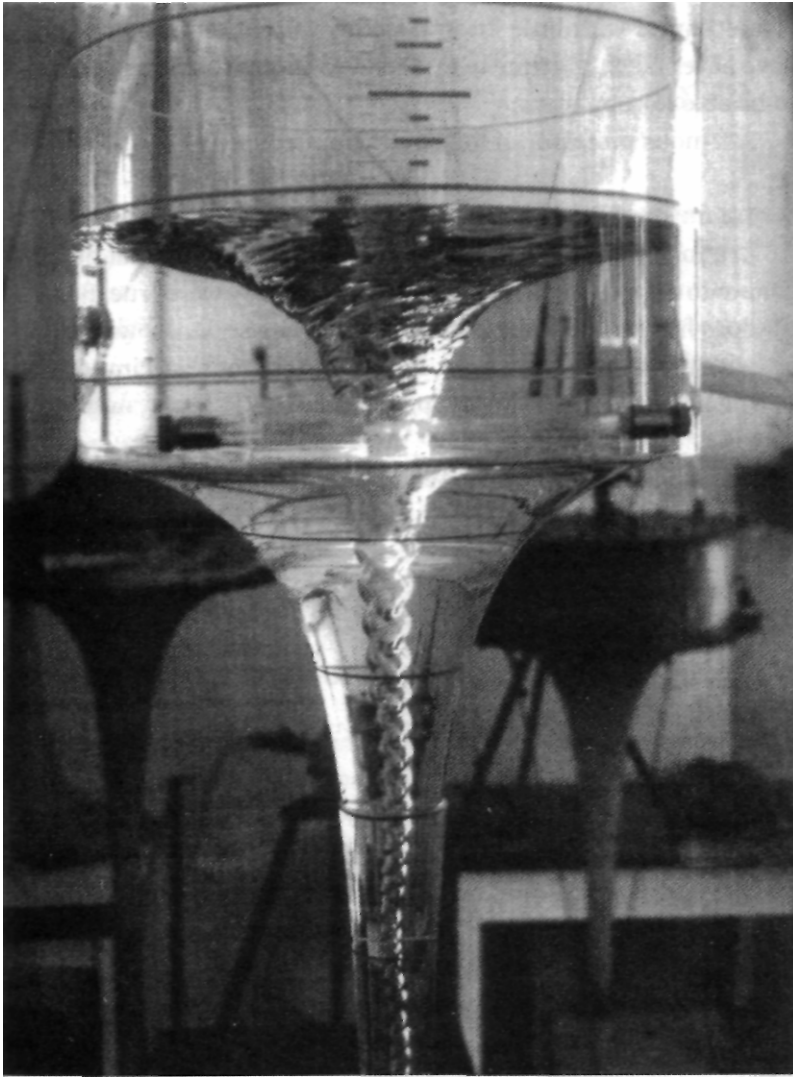


Fig. 5.3. A natural vortex.

At their extreme development, these air masses take on the more physical form of a tornado or waterspout. With their source in the lower density air mass subjected to solar radiation, as they descend with increasing velocity they become denser and more physical. The core of some tornados becomes so dense they can bend railway lines.

Viktor Schauberger found it hard to understand why science has not ascribed any fundamental importance to the natural movement of energy and Nature's systems of spiral movement, which are so clear, from the scale of a galaxy to that of a DNA molecule. Perhaps this is because it has been too immersed in the Euclidean elements

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of mechanics with little knowledge or conception of organics. We have never taken the time to understand enough Nature's dynamics to be able to copy them.

A famous professor of logic once pointed out:

We must conclude, I think, that there is no room for telepathy in a materialistic universe. Telepathy is something that ought not to happen at all, if the materialist theory were true. But it does happen. So there must be something seriously wrong with the materialist theory, however numerous and imposing the normal facts which support it may be.<sup>9</sup>

Goethe too said of scientists, 'Whatever you cannot calculate you do not think is real.'



## 6. Motion — the Key to Balance

What we are doing is wrong and contrary to Nature. Nature moves in other ways. She primarily employs drawing (i.e. sucking), energies, since these are indispensable to Nature for the growth and maintenance of life. Nature uses pressure energies and explosive forces only for reducing quality and destruction. The work of atomic physicists is also upside down. They would be more correct if they started with simple nuclear fusion. They should set about the cold transformation of hydrogen into helium, as Nature has done over the millions of years of Creation. Today's technology has a tiger by the tail, because it splits the heaviest atoms with the greatest development of heat and an enormous expenditure of energy.<sup>1</sup>

### We use the wrong form of motion

The way earth, water and air are moved determines whether pathogenic or healthy life-forms come into being. New life can arise from burnt (carbonized) bacterial cultures, but if it is wrongly moved and processed then its parasitic nature soon becomes evident. However, if this culture is placed in soil that has been spared humanity's misguided interference, then its life-force blossoms again immediately.<sup>2</sup>

Motion and energy are inextricably interlinked. Movement is an expression of energy, and together with temperature, these are the cornerstones of Schauberger's Eco-technology. Through his careful observations and experiments he became aware of the difference between Nature's way of working and the prevailing human technology. He realized that the principles under which conventional technology operates must be basically unsound to have produced such appalling consequences for water, for soil and indeed for all of life.

Most of us are aware of the effects of chemicals in the body and on the soil, of the dangers of radioactive waste and biotechnology. But Schauberger was also concerned with something much more basically wrong with our technology. Being above all a practical man, he observed the appalling squandering of resources; why are

the internal combustion and steam engines on which our civilization depend not even 50% efficient? The energy that is not turned into power or motion is wasted and heats up the atmosphere, adding to the greenhouse effect. From his observations of Nature came the answer, which is probably the most important of Schauberger's discoveries — that we use the wrong form of motion.

Our machines and technological processes channel agents such as air, water and other liquids and gases into the type of motion that Nature uses only to decompose and dissolve matter. As a consequence, the air, water and other substances are devitalized and debilitated, affecting their surroundings. The energy produced by our technology is harmful because, by its very nature, it causes deterioration in the environment through strengthening those energies that break down structures and degrade quality, while at the same time suppressing those that increase quality and thus help plants and animals to be healthy.

Biodynamic and organic gardeners have commented that they value Viktor Schauberger's advice on how to treat materials that Nature breaks down for recycling, for these insights have been lacking for this form of cultivation (see Chapter 17 for more on this topic).

Through its dependence on the decomposing mode of motion our technology is dangerously affecting the vital biodiversity and balance of our ecosystems, the stability of our societies, and is one of the main causes of human-generated global warming. The form of motion on which we depend for building and development is the one that Nature uses to destabilize and break down. Nature uses another form of motion for creating and rebuilding. It is hardly surprising then, that our technology is self-destructive and unsustainable.

Our mechanical, technological systems of motion are based on explosive, outward pushing energies which always meet resistance, producing heat and friction. This form of movement goes out at a tangent, producing the fastest movement at the periphery (as in a wheel), a form of motion that is disintegrative, noisy and inefficient, because so much of the energy is dissipated. The effect is to break apart, to fragment. This is the way we generate our power; from the inside to the outside. It is called centrifugal movement, and is a process that Nature will use only to break down before reassembly into some other form takes place (see Fig. 1.2, p. 33).

By contrast, Nature uses the opposite, centripetal, form of

motion, moving from the outside to the inside with increasing velocity, which acts to cool, to condense, to structure; like water going down a plughole. When we talk of something imploding on itself, there is not the resistance or dissipation of energy that is found in the explosive process. The reverse takes place, cooling and condensing. Schauberger called this 'constructive' movement.

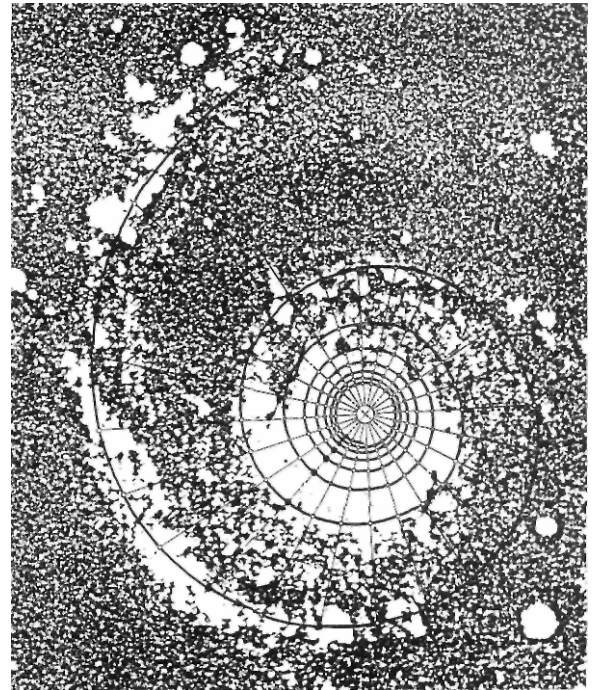
The centrifugal form of movement should not be called 'destructive,' because the word has such a negative connotation, and it has its rightful purpose in Nature; instead he called it 'deconstructive.' Viktor Schauberger demonstrated with his remarkable implosion machines that replicated the in-winding motion of Nature, that this was the way to create energy for human needs in the future.

As Schauberger's discovery has such enormous implications for the future of human culture, why has it not been openly debated in scientific circles? The reasons are two-fold. Firstly, Schauberger, being persona non grata with the German postwar establishment, was not granted the oxygen of publicity. Secondly, he was talked of in postwar Germany as a Nazi collaborator, by association rather than fact, as his work for the Nazi regime was carried out under duress. Though both the Russians and the Americans secretly confiscated his research papers, the Cold War days kept his name in the shadows. His discoveries have been enthusiastically embraced by the alternative culture, but as yet have not become more widely known.

## The 'original' motion

Viktor Schauberger was always comparing terrestrial laws of motion to the patterns of movement in the Heavens. He firmly believed that there existed a 'form originating' motion that was responsible for the evolutionary dynamics of the Earth and the Cosmos, generally referring to it as the 'original' motion. The whole Universe is continually in motion. This movement is in spirals, many spirals within spirals. Galaxies take a spiral form. As we saw in Chapter 4, forms in Nature very often follow the law 'As Above, so Below,' implying that there is a Universal language of form and motion. Liquids and gases prefer to move in spirals; likewise energy. Dowsers find energy spirals in the ground. Energy in the human body seems to do the same.

Fig. 6.1. Spiral galaxy superimposed by hyperbolic spiral.<sup>3</sup>



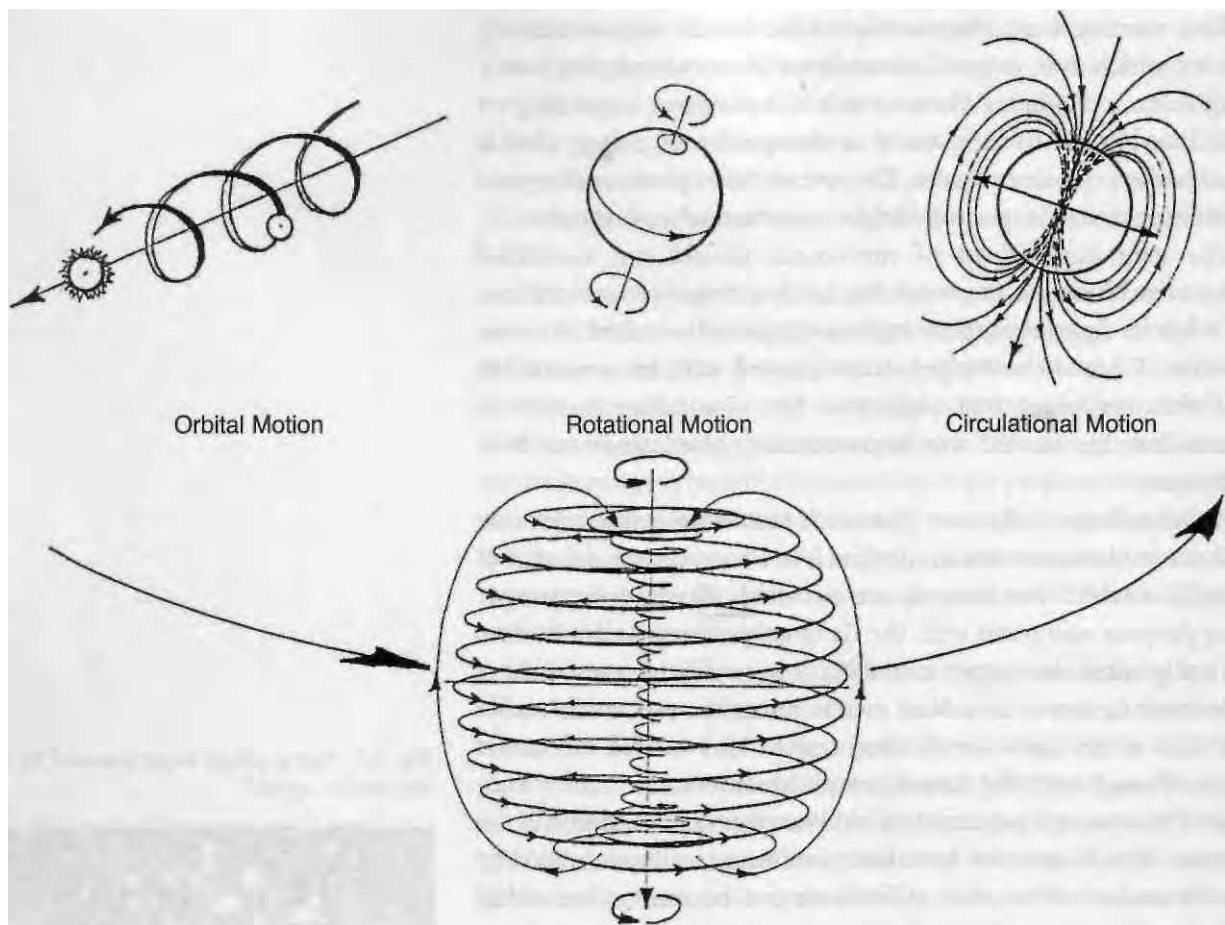


Fig. 6.2. Three basic forms of motion. When combined into one, these make up the dynamic, creative, formative spiral-vortical movement.<sup>5</sup>

As Callum Coats recounts:

There are many examples in ordinary language which recall this spiral movement. When we ex-(s)pire, we leave this our 'mortal coil.' When we are in-spire-d, we feel drawn to higher ideals. Our spir(e)it is raised when we are sucked into the upward spiral. Similarly through re-spir(e)-ation the ionization balance of the body, which varies according to the time of day, is adjusted by the proportional ionization of the air indrawn through the nostrils, which due to opposite directions of rotation, is negatively ionized by the left nostril and positively by the right nostril. Sneezing, therefore, may perhaps be a compensating process, through which high opposing charges resulting from over-ionization are reduced to zero.



Interestingly, the German word — Wirbelsaule — for the spinal column, the fundamental supporting structure of the human body, literally means a 'spiral' column. Similarly each of the vertebrae is referred to as a whirlpool or vortex. Clearly the Germans have long had a completely different view of the central structure of our bodies. Whereas we see it as a stiff, more or less rigid, physical structure, they understand it more as an energy path. This has obvious associations with the Hindu concept of Kundalini, the name given to the two serpents that metaphorically dwell at the base of the spine, whose rising energizes that spiritualize the various higher chakras (energy vortices) of the physical body and whose entwinement on Mercury's staff (the caduceus) empowers him as Messenger of the Gods. Nature too, provides us with countless examples of dynamic spiral growth and movement in the form of galaxies, cyclones, whirlpools and tornadoes, of which we, in our blindness and arrogance, fail to take note in our pursuit of mechanical perfection.<sup>4</sup>

## Types of motion

All natural dynamic motion consists of one or more of three basic types of movement — orbital, rotational and circulatory (see Fig. 6.3). When these are put together they produce a complex form we call spiral-vortical motion which Nature uses to build, structure and purify.

Viktor distinguished two forms of spiral-vortical motion — radial—> axial (or centripetal) and axial—> radial (or centrifugal) motion. In Fig. 1.2, axial —> radial motion is shown initially as a movement around a centre, changing to a tangential movement as it moves outward. There is no motion at the centre but, with increasing distance from the centre, the speed of movement and the degree of disintegration also increase. The wooden wagon-wheels of yore had an iron band around them for this reason. The 'tie-er' (tyre or tire) held the wheel together.

The form of movement employed by our technology produces excess energy in the form of heat or noise. Initially, with no movement at the centre, velocity and resistance increase with the outward 'explosion.' This axial -> radial centrifugal form of motion can

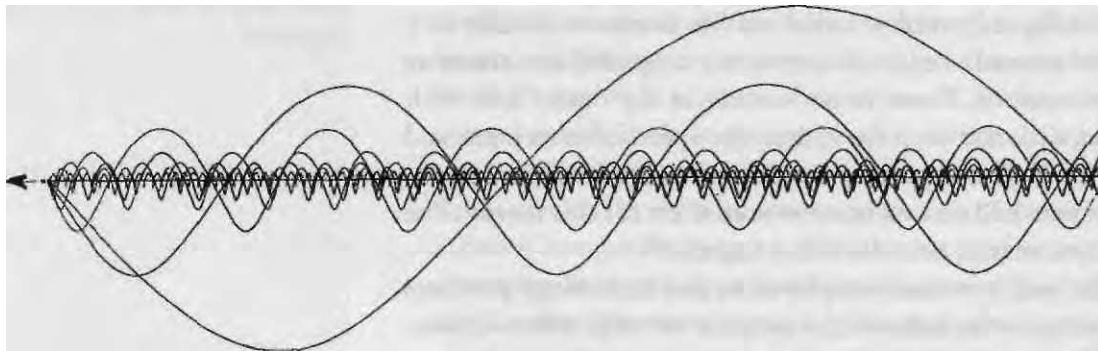
be described as divergent, decelerating, dissipating, structure-loosening, disintegrating, destructive and friction-inducing.

While the explosive dispersion of energy creates noise, its creative concentration of energy, is silent. As Viktor often insisted, 'Everything that is natural is silent, simple and cheap.' A natural forest can be a haven of silence. The millions of chemical and atomic movements and interactions taking place are energetic processes, an extraordinary concentration of quiet creative energy. In contrast, its destruction brings the horrendous racket of chain-saws, heavy machinery and crashing trees. Our mechanical forms of movement are almost always axial  $\rightarrow$  radial and heat- and friction-inducing. Nature's dynamic processes, on the other hand, use the opposite form of movement, the slowest at the periphery and the fastest at the centre. The movements of a cyclone or a tornado are a good example, flowing from the outside inwards with increasing velocity, which acts to cool, to condense, to structure. The centre of a cyclone is not hot; it is cool.

Radial  $\rightarrow$  axial (centripetal) motion can be defined as convergent, contracting, consolidating, creative, integrating, formative, friction reducing.<sup>6</sup> The dynamics of evolution must therefore follow this centripetal path, for if the opposite were the case, all would have come to a stop almost before it started.

Force is the employment of energy to do work, and can be measured as acceleration. It is important to distinguish between two forms of acceleration, for one form breaks apart and the other consolidates. In the deconstructive form the radius of rotation is expanding and the form of acceleration is pressure- and friction-

Fig. 6.3. The planetary vortex.  
The movements of the inner planets, shown dynamically over a period of one full Saturn cycle of 29.46 years, actually describe a vortex, with each planet describing its own spiral path about the Sun.



intensifying (centrifugal acceleration); the constructive when the radius of rotation is reducing, creating a form of acceleration that is suction-increasing and friction-reducing (centripetal acceleration). More power must be applied to maintain the same velocity or to increase speed with centrifugal acceleration. With centripetal acceleration, the velocity and energy increase automatically. Viktor called this 'formative force,' the constructive energies from which all life is created.





## 7. The Atmosphere and Electricity

It is thought that, when the Earth was young, after it had cooled from a molten mass of condensing gases and a crust had formed, it was entirely covered in water. In those early days there was great heat loss and the Earth was cooler. The lower part of the initial atmosphere was composed of water vapour evaporated from the vast ocean, with a contribution of other gases emanating from volcanic eruptions. Because of its high specific heat<sup>1</sup> and its capacity to retain heat, the water vapour gradually absorbed the heat of the Sun, thus raising the average temperature. Heat losses were kept to a minimum at night because water absorbs infrared heat. It was these qualities of water that allowed the greenhouse effect to take hold. Otherwise the Earth would have remained cold, lifeless and barren.

Of all liquids, water has the greatest ability to store heat. It absorbs heat slowly, releasing it slowly. Water vapour was thus an ideal medium for conserving heat on the Earth's surface, enabling life to gain hold and, once it was established, water became the medium for complex life forms to develop.

What makes water different from all other liquids is its so-called 'anomaly point' or 'point of anomalous expansion,' which will be discussed in more detail in Chapter 9. Contrary to the behaviour of other liquids, the volume of water does not decrease continually with increasing cold; below a temperature of +4°C (39°F) it starts to expand again, and on freezing expands still further.

Pure water will freeze only at a temperature of around -40°C (-40°F) or in clouds at about -10°C (14°F), which again is fairly important, as we shall discover later. Compared to absolute zero (-273.15°C), supposedly the lowest temperature found in the Universe, the temperature of 0°C (32°F), or freezing point, is relatively warm. The normal human living environment, between approximately -10°C (14°F) and +40°C (104°F), is not a large range.

At a height of about 22 km (14 miles) above the Earth's surface, water vapour becomes so thin and unsubstantial that it is dissociated into its constituent atoms of oxygen and hydrogen through the action of strong ultraviolet radiation. As it is the heavier element,

the oxygen then sinks back to Earth, while the lighter hydrogen atoms rise eventually to reunite with the hydrogen of space.

The widowed single atom oxygen atoms are now exposed to high levels of ionizing radiation which causes them to combine with molecular oxygen (O<sub>2</sub>) to form an allotropic form of oxygen, O<sub>3</sub> or ozone, which absorbs dangerous ultraviolet radiation, a process vital for shielding life on Earth.

## Earth's atmosphere

The atmosphere is a relatively thin veneer surrounding the Earth, containing the gases essential to life. Its total thickness is about 400 km (248 miles), which represents about 0.3% of the Earth's diameter. It has four principal zones, through which the temperature swings alternately from a falling mode to a rising mode:<sup>2</sup>

During each of these temperature transitions, the anomaly point of 4°C (+39°F) is passed, so that in each zone there is first a band of negative temperature gradient, followed by a band of positive temperature gradient (see Chapter 5). The three lower zones each have a water layer close to these anomaly points, cumulus and cirrus clouds (troposphere), nacreous clouds (stratosphere) and noctilucent clouds (mesosphere) as shown on Fig. 7.1 which would resist the transfer of an electric charge. Callum Coats has suggested that this could result in the creation of a natural biocondenser, a condenser being a device with which an electric charge can be accumulated and stored.

Table 1. The four principal zones of the Earth's atmosphere.

	height (km/miles)	temperature	
Troposphere:	13/0 to 8	+ 15°C (59°F) to -60°C (-76°F)	area of weather activity
+4°C (39°F) layer	3.5/2		and the greenhouse effect
Stratosphere:	13/8 to 50/31	-60°C (-76°F) to +10°C (50°F)	contains ozone layer
+4°C (39°F) layer	40/25		and very high clouds
Mesosphere:	50/31 to 80/50	+10°C (50°F) to -100°C (-148°F)	rapidly falling temperature
+4°C (39°F) layer	65/40		and pressure
Ionosphere:	80/50 to 400/248	-100°C (-148°F) to +600°C(+1100°F) absorbs Sun's shortwave	
+4°C (39°F) layer	100/62		radiation

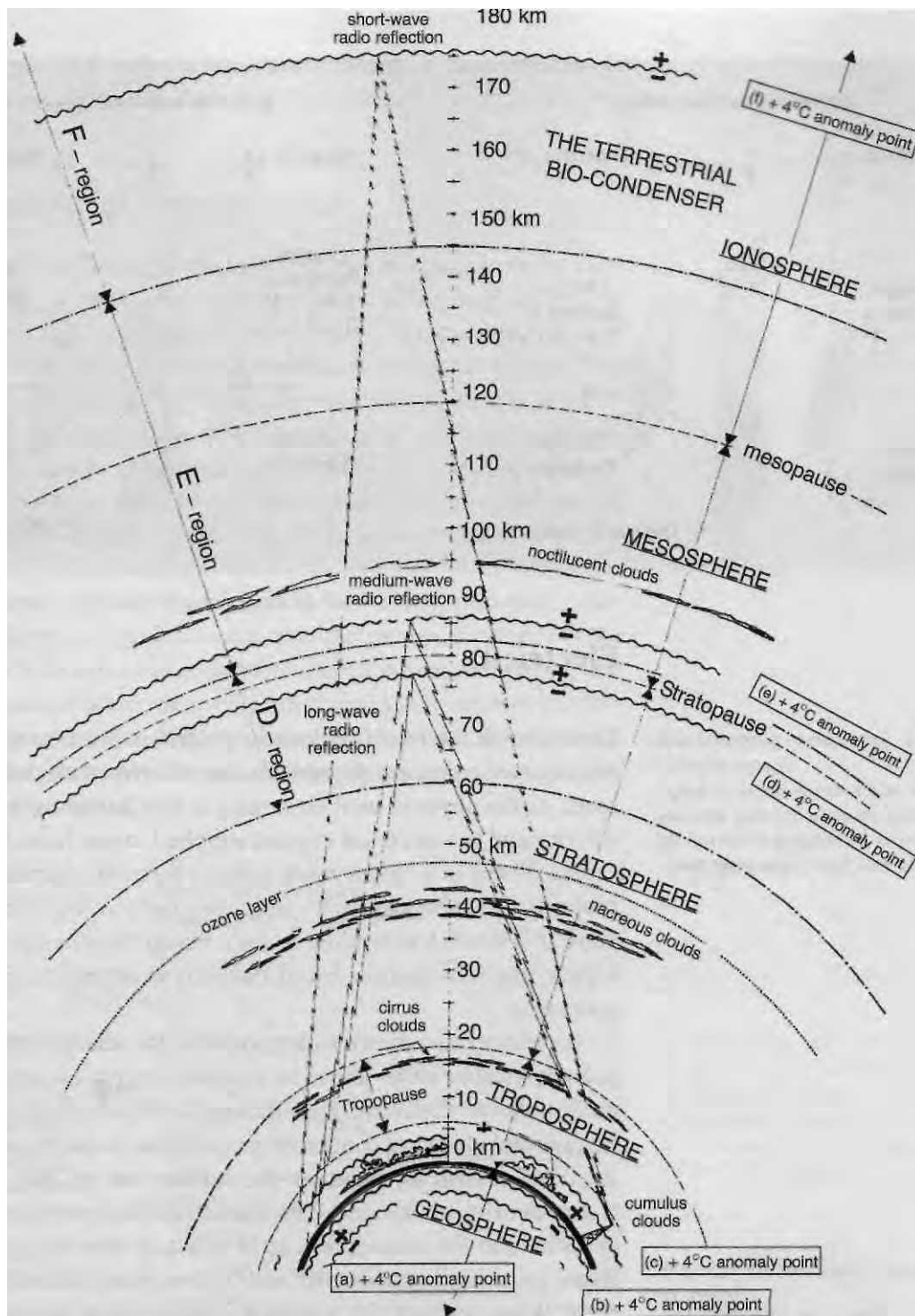
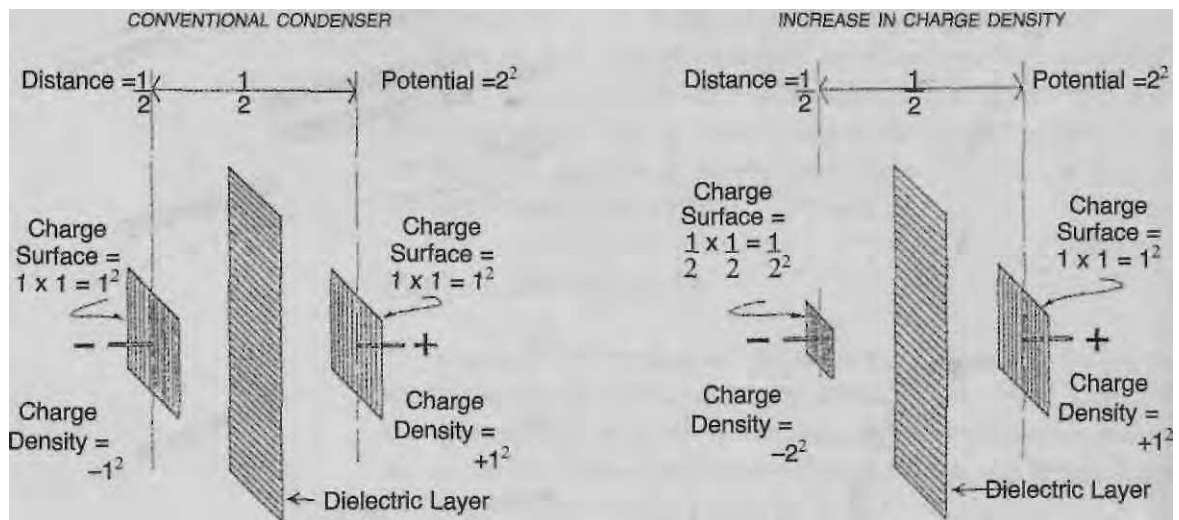


Fig. 7.1. Section through Earth's atmosphere, showing temperature fluctuations.

Galium Coats postulates a series of concentric rings where the temperature reaches water's anomaly point of  $+4^{\circ}\text{C}$ , which Schauberger identified as water's state of greatest potential, together creating an accumulator of energy to facilitate the emergence of life.



## Electricity

Figs. 7.2 & 3. Increase in potential and charge density.

In a condenser for accumulating electrical charge, the energy potential increases by either reducing the area of one plate, or by bringing it closer to the dielectric layer (separating plate).

Electricity is the result of magnet polarities put into motion. In electricity the process depends on the polarity of electrons in the atom. At the physical level electricity is familiar in thunderstorm activity and the electrical current supplied to our homes through cables. There is a much more refined form of electricity more properly called bioelectricity which is produced by living organisms. It is much less studied or even recognized, being an octave higher, but Schauberger found that this is crucial to all natural processes.

For electrical activity to be possible, the charges of different polarity must be either joined by a conducting path or separated by an insulator or dielectric. Figs. 7.2 and 7.3 illustrate two situations in a normal electrical condenser or capacitor for accumulating an electrical charge. By reducing the surface area of one plate, the charge density on that side of the dielectric is increased, in the ratio of its area to the larger plate. So if it is a quarter the area of the larger plate, its charge density will be four times that of the larger plate. What is called the potential is the amount of energy with which the two opposite charges try to balance out the difference. The energy potential increases as the distance between the plates

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is decreased.<sup>3</sup> If the area of one plate is reduced at the same time as it is moved closer to the dielectric, the potential is increased exponentially.

## The terrestrial biocondenser

While Fig. 7.2 illustrates the principle of a normal electrical condenser, Fig. 7.5 shows the typical situation at layers of the atmosphere where the air temperature is close to the anomaly point of +4°C (39°F). The pure water layer takes the place of the dielectric layer. Generally speaking the positively charged surface is influenced by the positive temperature gradient, and the negatively charged surface by the negative gradient. If the charge of the positive plate is raised, that of the negative plate will rise automatically to the same level, the charges being distributed evenly on the plates' surfaces.

If we now rearrange these plates in the form of concentric cylinders as shown in Fig. 7.4, to simulate the proposed pattern of the +4°C (39°F) condensers in the atmospheric zones, you will see that the surface area of the inner cylindrical plates reduces from the outside inwards and the charge and potential increase automatically. The greater the number of nested plates therefore, the more intense the energy potential.

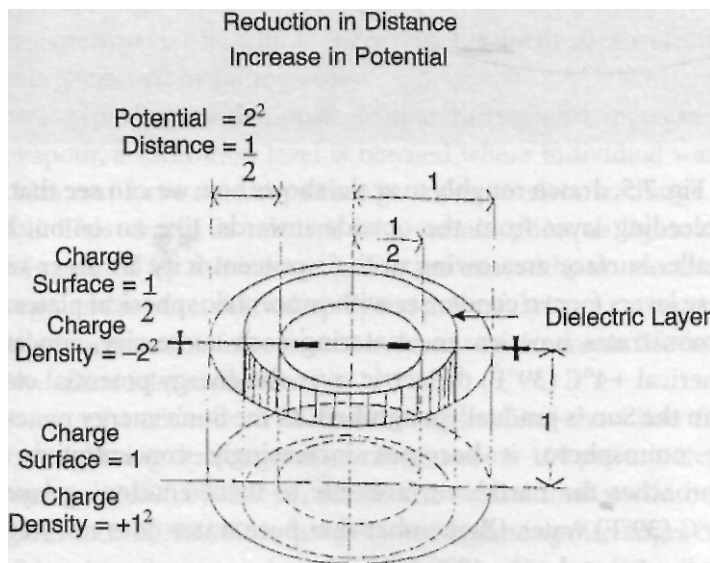


Fig. 7.4. Reduction in distance, increase in potential.  
The dielectric layers act like non-conductive membranes or insulators, separating positive and negative charges.

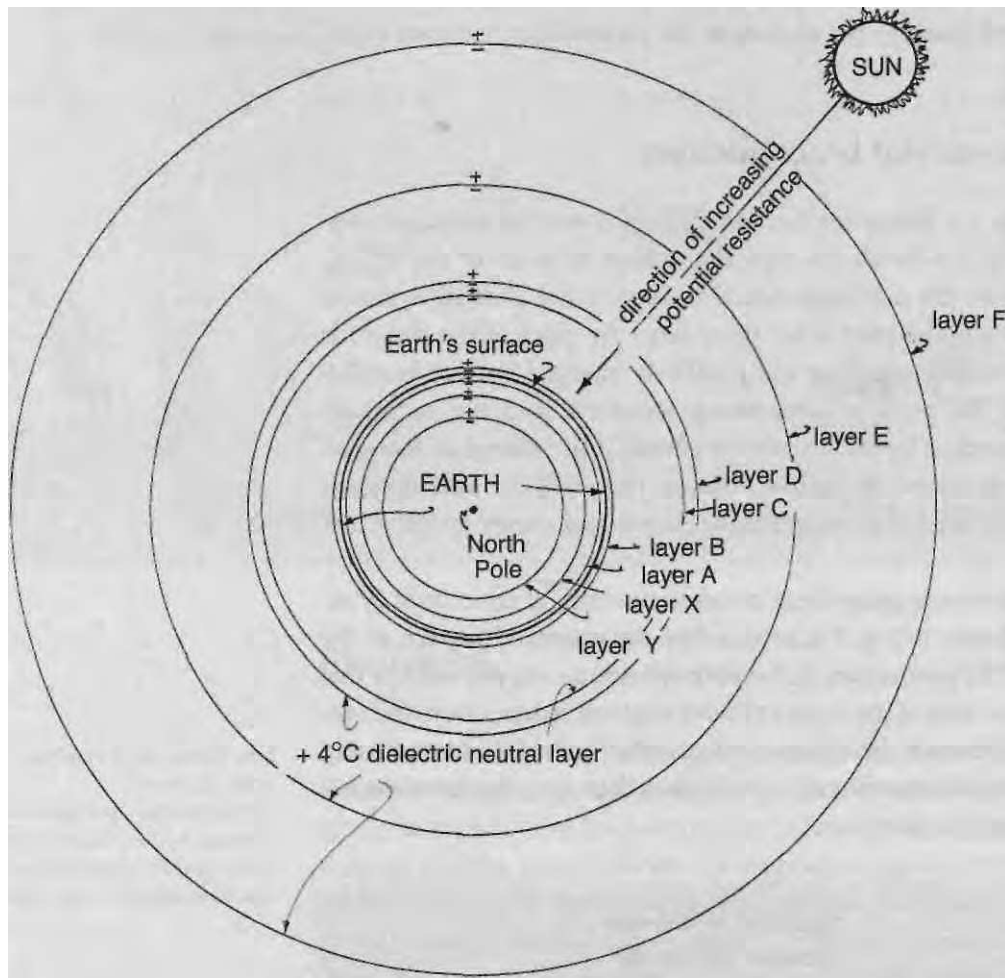


Fig. 7.5. Terrestrial bio-condenser.  
A schematic proposed by Galium Coats, illustrating how the Sun's electromagnetic energy is amplified by the diminishing radius of each dielectric layer formed by water strata at a temperature of +4°C.

Fig. 7.5, drawn roughly to scale, shows how we can see that each succeeding layer from the outside inwards, like an onion, has a smaller surface area owing to their concentricity. In other words, these layers form a condenser with concentric spherical plates. This demonstrates how, on encountering each successive, concentric, spherical +4°C (39°F) dielectric layer, the energy potential coming from the Sun is gradually magnified. As the Sun's energy penetrates the atmosphere, it becomes increasingly concentrated as it approaches the Earth's surface, due to these enveloping layers of +4°C (39°F) water. (Remember that pure water does not freeze at temperatures above -40°C / -40°F.)

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## Earth as an accumulator of energy

Viewed from a more cosmic perspective these strata are extremely close together, producing a very high potential of energy. Callum Coats proposes an ingenious concept of the Earth as an accumulator of energy gradually building up an electromagnetic charge (Fig. 7.5). This accumulation of energy would naturally enhance the emergence of life because, without differences in electrical charge, gender, potential or a suitable energy field, life is impossible.

Viktor Schauberger was concerned to identify which natural processes and functions might promote the concentration of the energetic matrix within which physical life can evolve. He favoured an energy matrix being created by the 'original' motion of the Earth as it rotates about its own axis and circulates its biomagnetic and bioelectrical energies through itself during its 365.26 day, orbital waltz around the Sun.

It seems reasonable to propose that these variously charged layers in the atmosphere are a product of the Earth's rotation. The +4°C (39°F) layers form charge-resisting strata which may contribute to the reflection of radio waves, though the conventional explanation for their reflection is the different ionization levels, water vapour being present at different densities in the different layers.<sup>4</sup> The development of electricity can be demonstrated by very simple experiments, in which energy in the form of an electric charge is generated by falling water.<sup>5</sup>

These experiments demonstrate that through an increase of water vapour, a saturation level is reached where individual water molecules can form raindrops that generate an electric charge as they fall. This charge is released at a certain point as lightning. Ozone is created by the intense ionization caused by an electrical discharge, and is often carried up by the powerful rising currents of a thunderstorm, to reinforce the ozone layer, which screens life from excessive ultraviolet radiation.

Photographs taken from Earth-orbiting satellites show how frequent are lightning discharges, occurring at about 100 per minute. If they average 15,000,000kw per strike, the annual total would be a prodigious 13,000,000,000kw/hrs per year.<sup>6</sup> Lightning discharges can reach 9 km (6 miles), and sheet lightning up to 100 km (62 miles).

### 7. THE ATMOSPHERE AND ELECTRICITY

There is some evidence in recent years of a decline in thunderstorm activity.<sup>7</sup>

If this were the case, the implications for the protective ozone layer would be serious. Water particles have to be very fine in order to spin fast enough to produce an electrical discharge (the water atom is an electrical dipole). One of the features of more stormy weather is to produce a larger water drop that cannot spin fast enough to produce a significant electrical charge.

## Electricism and magnetism

Viktor Schauberger coined the term 'electricism' for the effect that electricity has on life, which is destructive, dismantling, disintegrative and debilitating. Magnetism is the energy that circulates through and around the Earth on its polar axis. Electricism and magnetism are apparently contradictory (or dialectic partners, see p. 47). Together they form the electromagnetic whole, magnetism being the more cohering and life-affirming (female) of the two. Its higher state, biomagnetism, which is associated with living organisms and whose qualities are uplifting and upbuilding, is an energy responsible for the combining of elements in the creative process of building new life forms on a higher, more refined octave (e.g. the fourth dimension). Bioelectricism, on the other hand, is associated with the deconstructive aspect of organic life.

As we saw in Chapter 3, bioelectricism and biomagnetism are complementary, but operate differently in contrasting functions, representing extremes of bioelectromagnetic quality. As in all formative and life-building processes, both bioelectricism and biomagnetism are part of the action, but normally balance each other. However, in order for creative processes to be successful, biomagnetism must predominate.

The Van Allen belts, encircling the Earth roughly over the area between the tropics of Cancer and Capricorn, form the radial expansive (centrifugal) electric (bioelectric) function of the Earth dynamo. The axial magnetic (biomagnetic) contractive (centripetal) function is performed by the magnetic lines of force passing through the centre of the Earth from the South to the North Pole and sweeping around the Earth globe from North to South. Between these two component forces, a pulsation, which is the hallmark of all living things, is created as electrical and magnetic moments



alternately attain their maxima. According to Viktor Schauberger, these oscillations take place at such a high frequency that we cannot perceive them, and view them as a state of rest.

## Storms, water vapour and climate

The amount of water evaporated annually from the oceans has been calculated to total about  $333,000\text{km}^3$ .<sup>8</sup> By comparison, the amount from rivers, lakes and land surfaces is more like in  $62,000\text{km}^3$ , or 18.6% of the world's annual rainfall ( $395,000\text{km}^3$ ). This has in the past been derived mostly from forests. However, the enormous deforestation of the last fifty years, particularly for agriculture and beef production, has led to a much higher evaporation rate from the Sun-exposed land surfaces.

This leads to a higher volume of water vapour in the atmosphere, which in turn increases the greenhouse effect, leading to higher temperatures which produce a further increase in evaporation from the oceans.<sup>9</sup> There is one feedback mechanism which alleviates the increase in surface temperature; this is the increase in cloud cover as a result of the increased water vapour, increasing the reflection of the Sun's energy back into space (the albedo effect).

While this additional water vapour will increase the general atmospheric temperatures, much of it will drift towards the poles due to the movement of the upper air streams, there to fall as snow, adding to the volume of water fixed almost permanently as ice. This abnormal water vapour content increases the amount of cloud cover, increasing the albedo effect by which the Sun's energy is reflected back into space from the clouds' surface.<sup>10</sup>

The catastrophic rainfall in some areas like Bangladesh and Mozambique and the severe drought conditions of central Africa and northern China are the result of this serious disturbance of the Earth's water balance. Man's destruction of the forest starts a chain reaction that precipitates the cumulative effects of an increasingly disrupted world climate.

## PART THREE



## Water — the Source of Life

## 8. The Nature of Water

The Upholder of the Cycles, which supports the whole of Life, is WATER. In every drop of water dwells a Deity, whom we all serve; there also dwells Life, the Soul of the 'First' substance — Water — whose boundaries and banks are the capillaries that guide it and in which it circulates.

Viktor Schauberger<sup>1</sup>

Our Earth is the planet of water. Seventy percent of the world's surface is covered by water. Our bodies are seventy-five percent water. It is essential to all life. Yet, our present science understands little of its real nature. We have no respect for water; we use it for transporting inappropriate substances, usually waste and pollutants. We destroy its complex structures by driving it through turbines, pipes or straightened riverbanks. We treat it as a commodity. Viktor Schauberger called it a living organism, 'the blood of the Earth,' and insisted that in its various forms, as blood, sap or water, it is the basis of all life.

Viktor Schauberger was known as 'The Water Wizard' because he made profound discoveries about its nature. His principal pre-occupation was with water as the key to all life, and its vital relationship to the forest. He saw water as the foundation of all life-processes and the channel that nourishes and energizes all life. He also recognized it as a living entity, whose main function is to accumulate and transform the energies originating from the Earth and the Sun. The source of all our problems, according to Schauberger, is our failure to regard water as an organism; we arrest its creative processes and when it becomes our enemy it can do enormous damage.

As a young man, searching for inspiration in his beloved forest, Viktor was sitting quietly by the bank of a pristine stream when he unexpectedly found that his consciousness entered the water. It connected with an intelligence in the water that spoke to him. It told him what movements it needed to make in order to stay healthy, and under what conditions. It was from this mystical experience that he built up his awareness of how healthy water is

essential for the creation and maintenance of all life. Water needs to flow in a particular dynamic way, and must not become overheated. Movement and temperature are the key criteria for water, and therefore for all life.

Still water is passive; it is amorphous and apparently lifeless. As soon as it begins to move, it is filled with surfaces that define little structures, convoluted in form, and with magical vortical shapes. The nature of water is to move. When it is active it comes alive; in movement it fulfils its potential, which is to bring life.

When it is immature, water takes, absorbing minerals with a voracious appetite, to give back the much needed nourishment to its environment only when mature as a mountain spring. Water has a memory; when we think we have 'purified' water of the chemicals and hormones we have mindlessly thrown in, in order to make it drinkable, the energy of these contaminants remain, polluting our energy bodies in the same way that chemicals affect our physical bodies. Because of its nature, water sacrifices itself entirely to the environment, for good or for bad.

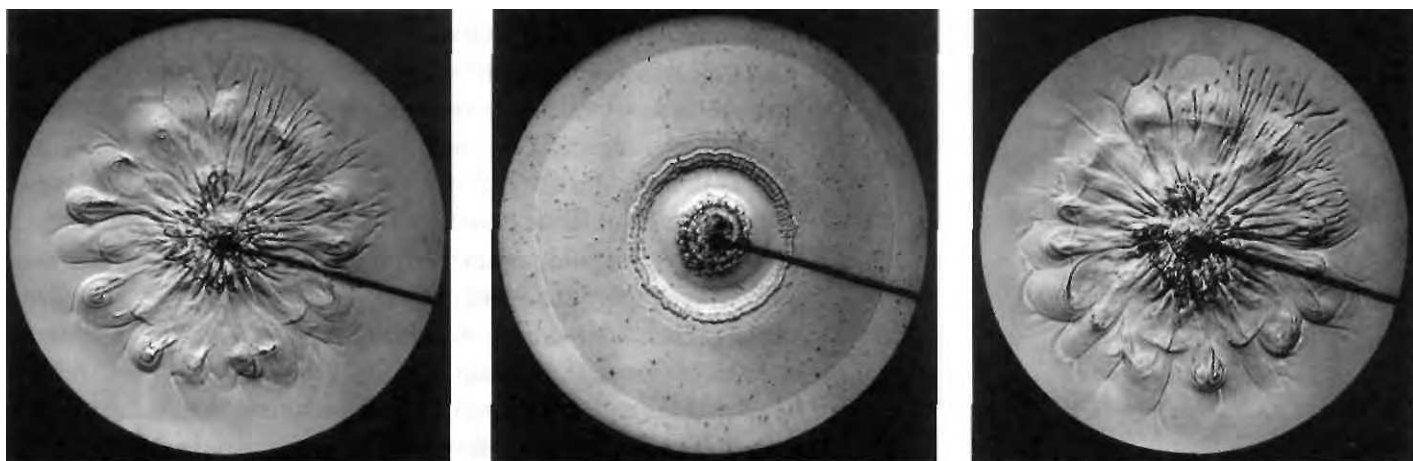
People mocked Viktor when he insisted that water behaves like a living organism. When it has reached maturity water displays amazing properties. He showed how, when it is vibrant and healthy, it pulsates, twists and spirals in a very specific way that maintains its vitality and purity, enabling it to fulfil its function for all organisms as an energy channel and a conveyor of nutrients and waste.

If we watch water streaming down an inclining road after a shower of rain, or a rivulet on the sloping beach sand towards the sea, we will notice how it pushes down in a jerky rhythm, as pulsations. That is because water is alive — it actually does pulsate, just as blood pulsates through the veins and arteries of the body. But the most miraculous fact about water is that it has the power of self-purification, and can restore its generative properties in the same way that other living things can heal themselves.

In all symbolic traditions, water is linked with the emotions. It is the emotions that open us out to life, that make us sensitive, receptive and compassionate. Artists love water for its inspiration; it has the ability to stimulate awareness and imagination. I am fortunate to live by a stream; the murmur of a little waterfall by my gate has the quality of calming my emotions. The sounds of water are very evocative; the 'plop' of a drop on a pool surface echoes in the cave;

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the rhythmic crescendo and fall of the waves hitting the rocks, or the swish and suck of the waves on the beach.

Current wisdom accepts that water is important because it is the most common substance on the Earth's surface, and that it is the main physical constituent of all living organisms. But conventional science regards water only as inorganic, with no life of its own.

## The memory of water

Water's reputation as a powerful solvent derives from its electromagnetic qualities. The positive hydrogen atoms in the water molecule attract to themselves negative ions from the substance they are in contact with, while the oxygen atom with a double negative charge joins up with positive ions, so that balance is maintained. In this way water breaks down and dissolves substances into their constituent parts, taking oxygen, nitrogen and carbon dioxide from the air, and calcium, potassium, sodium and manganese, etc, from the rocks. Water continually collects substances from one source, depositing them, usually as building blocks for new growth, somewhere else.

When water is flowing as its nature dictates, energetically in spirals and vortices, it creates the structure necessary for it to carry constructive information. These are microclusters of vibrating energy centres, constantly receiving and transmuting energy from every contact the water body makes. Despite water's fluidity and its ability constantly to change its state, the molecules, if conditions permit, generally organize themselves into structures. The vortical

Fig. 8.1. These 'drop' pictures show the structure of water. The first is of living spring water with its structure complete; the second downstream after domestic sewage and industrial effluents, with a trace of rudimentary development, but no formative capacity; a third taken from further down the stream will show how it has, through its natural spiralling movement, rebuilt the water's structure.

New techniques are now being developed for demonstrating photographically the structure of water, e.g. through magnetic resonance equipment, of which the best known are the experiments of Dr Masaru Emoto with ice crystals.

movement creates the microclusters and also a complex laminar structure that generates energy from the interaction of their plane surfaces against each. These structures can be observed with a suitable microscope. The more powerful the vortical action, the greater the storage capacity of information (like adding memory to your computer). Thus water put through Viktor Schauburger's implosion (powerfully vortitized) process (see Chapter 18) has the ability to enhance the energy of organisms with which it comes in contact. The clusters have the ability to store vibrational impressions or imprints. If these are beneficial, they may be able to restore healthy resonance in the human body, as through homeopathy. On the other hand if they are the imprints of toxins or pollutants in the drinking water, they may be carriers of disharmony and disease (see p. 119).

Viktor demonstrated that water as an organism has a life cycle from birth, through maturation to death. When it is treated with disrespect or ignorant handling, instead of bringing life and vitality, it becomes anti-life, facilitating pathogenic processes in the organisms it inhabits, which initiate physical decay and eventually bring death. One of Schauburger's more controversial discoveries was that water that has been structurally damaged takes on negative energy that precipitates deterioration in the human being, affecting our actual moral, mental and spiritual wellbeing.

## The creation of water

Where does water come from? No one really knows. It is one of Nature's mysteries. Its source cannot be the upper atmosphere for, as we saw in Chapter 7, the water molecule is actually broken down at high altitudes. The only other source must be the Earth herself. Fascinating research done by the American Stephan Riess in 1934 showed that enormous quantities of virgin water could be obtained from crystalline rocks. A combination of geothermal heat and a process known as triboluminescence, a glow which electrons in the rocks discharge as a result of friction or violent pressure, can actually release the oxygen and hydrogen gases in certain ore-bearing rocks. This process, called cold oxidation, can form virgin water.<sup>2</sup>

Riess was able to tap straight into formations of hard desert rock of the right composition and produce as much as 3,000 gallons per

minute. Unfortunately, his efforts to provide needy areas with copious quantities of high quality, fresh water were thwarted by Californian politicians with vested interests, and he was persecuted relentlessly. His experiments should now be replicated.

Water is conventionally described as  $H_2O$ , having two hydrogen atoms, each carrying a positive external charge, and one oxygen atom carrying two negative external charges. It has, however, been analysed to contain 18 different compounds and 15 separate types of ions.<sup>3</sup> Both seawater and our bodies contain 84 elements in the same proportion. There is 4% salt in our blood; in the oceans it is also 4%.

Water is not a straightforward substance with its own identity, for it takes on the qualities of the medium in which it moves, or the organism in which it resides. It has the unusual ability of being able to combine with more elements and compounds than any other molecule and is sometimes described as the universal solvent. Viktor called it an 'emulsion' when it is supercharged with these creative, 'fructigenic' energies. The more diverse the make-up of constituents dissolved or suspended in water, the more complex the emulsion and the broader the range of its properties. (Carbon, its so-called inorganic counterpart, has a similar capacity that no other elements possess.) Water is found in three physical states: solid as ice, liquid as water and gaseous as water vapour. It also comes in many guises and forms: it is saline and fresh, it is blood and it is sap.

## The anomaly point of water

The density of water is crucial to its behaviour. It is at its densest and has its greatest energy content at a temperature of  $+4^{\circ}C$  ( $39^{\circ}F$ ). This is the so-called 'anomaly point,' which has a major influence on its quality. Viktor called the temperature of  $+4^{\circ}C$  ( $39^{\circ}F$ ) the state of indifference of water, meaning that when in its highest natural condition of health, vitality and life-giving potential, water is at an internal state of energetic equilibrium and in a thermally and spatially neutral condition. Above a temperature of  $+4^{\circ}C$  ( $39^{\circ}F$ ), water expands. Below this temperature it also begins to expand and become lighter in weight. Because of this ice floats and is able to protect the fish in the water below from extremes of cold.

## 8. THE NATURE OF WATER

It was very convenient for Nature to arrange that mammals and other creatures should depend on blood. In the body, the temperature of the blood (composed 90% of water) is almost exactly the same as the temperature of water at its point of lowest specific heat of +37°C (+98.4°F). This means that our bodies are able to tolerate a wide range of ambient temperatures, for a great amount of heat or cold is required to change the temperature of water. But it also holds on to heat well; good for body temperature and for domestic heating systems.

We are familiar with the principle that the normal temperature of blood in the human body is +37°C (+98.4°F). A very small change in that temperature indicates sickness. It is the same with water and with sap. Schauberger demonstrated this to the world-renowned hydraulicist, Professor Philipp Forchheimer by putting some hot water into a mountain stream. The marginal rise in temperature downstream caused the complex structure of the water filaments to break down, so that a trout that they had observed holding its station in the torrent was unable to stay, and was swept downstream. Forchheimer was dumbfounded, because conventional science does not recognize the importance of small temperature differences.

If science were able to see water as possessing as well as giving life, it would be a giant step towards the rehabilitation of water in human society. Schauberger wrote:

Were water actually what hydrologists deem it to be — a chemically inert substance — then a long time ago there would already have been no water and no life in this Earth. I regard water as the blood of the Earth. Its internal process, while not identical to that of our blood, is nonetheless very similar. It is this process that gives water its movement.<sup>4</sup>

The symbol H<sub>2</sub>O represents pure or distilled water. Schauberger called it 'juvenile' water, because it has no developed character or qualities. It is raw and hungry. Like a baby, it grasps at everything within reach. If you drink only this juvenile water, it will weaken and eventually kill you because it leaches out the minerals and trace elements from your body. Water is mature when it is suitably enriched with raw material, what we call 'impurities,' on which other organisms depend for their energy and life.

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## The qualities of different waters

Although good water is tasteless, without colour or smell, it quenches our thirst like nothing else. In order to be healthy, we need to drink, according to some authorities, 1-2 litres (5-9 pints) of good quality water a day.<sup>5</sup> Some types of water are more suitable for drinking than others. In Chapter 12 we shall consider some of the choices we have of improving the quality of the available water before we drink it. High quality water should contain elements of both geospheric (female) and atmospheric (male).

### Distilled Water

Considered physically and chemically to be the purest form of water. Its nature is to extract or attract to itself all the substances it needs to become mature itself, and therefore absorbs everything within reach. Such water is really quite dangerous if drunk continuously long-term. The 'Kneipp cure' uses distilled water for its short-term therapeutic effect, where it acts to purge the body of excessive deposits of particular substances.

### Rainwater

If it has not been affected by industrial pollution (acid rain), rainwater is the purest naturally available water. Slightly richer through the absorption of atmospheric gases, it is still unsuitable for drinking in the long term. When drunk as melted snow-water, it also gives rise to certain deficiencies and if no other water is available it can on occasion result in goitre, the enlargement of the thyroid gland.

### Juvenile Water

Juvenile water is immature water from deep underground sources, like geysers. It has not mellowed sufficiently on its passage through the ground. It has not developed a mature structure and contains some minerals (geospheric elements), but few gases (atmospheric elements), so as drinking water it is not very high grade (cf most spa waters which arise from mineral rich depths).

### Surface Water

Water from dams and reservoirs contain some minerals and salts absorbed through contact with the soil and the atmosphere. Its



quality deteriorates through exposure to the Sun, to excessive warming and to chemicals and other pollutants. Although most urban communities now depend on this source, generally speaking it is not good quality water.

#### Groundwater

Groundwater has a higher quality due to a larger amount of dissolved carbons and other trace salts. This is water emanating from lower levels, seeping out at the surface after passage along an impervious rock surface. Often this is now polluted by the chemicals of industrial agriculture.

#### Spring Water

True spring water has a large amount of dissolved carbons and minerals. Its high quality is often shown by its shimmering, vibrant bluish colour. The product of infiltrating rainwater (full complement of atmospheric gases) and geospheric water (full complement of minerals, salts and trace elements), this is the best water for drinking, and it often retains this quality in the upper reaches of a mountain stream. Commercially bottled 'springwater' is unfortunately not always of the best quality — many are not from true springs — even if it is bottled in glass rather than the plastic which impairs its quality.

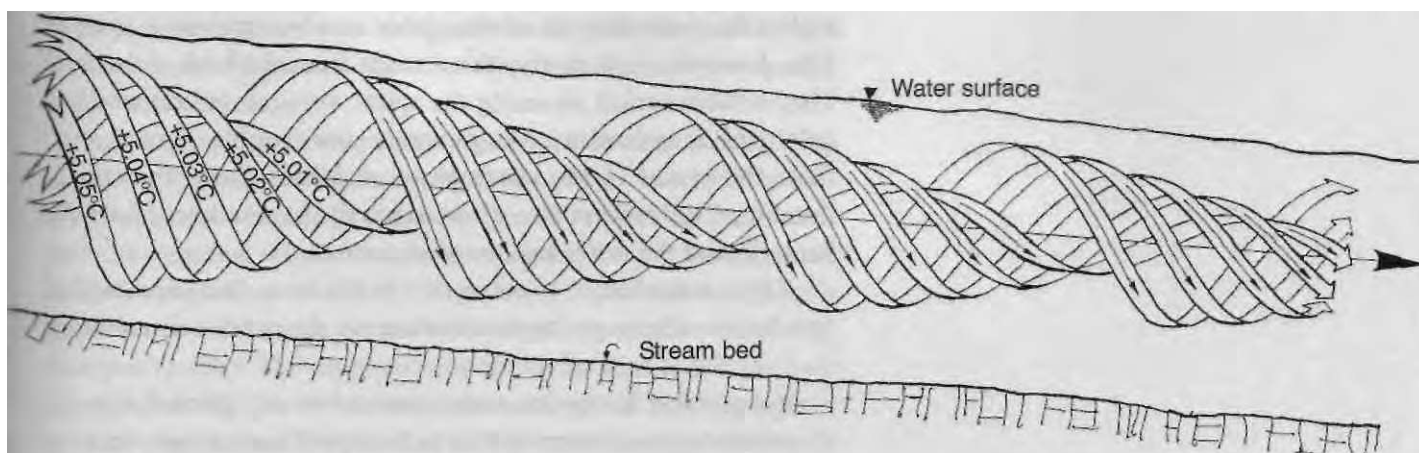
#### Other Groundwater

Artesian water is obtained from boreholes and is of unpredictable quality. It may be saline, brackish, or fresh. Water from wells can vary from good to poor, depending on how deep is the well and what stratum of water is tapped, and they can be polluted by nitrates and herbicides.

### How the river protects itself

Schauberger saw water as being conceived in the cool, dark cradle of the virgin forest. As it slowly rises from the depths, water matures. It absorbs minerals and trace elements on its upward path. Only when it is ripe will it emerge as a spring. A true spring, (compared to a seepage spring), has a water temperature of about +4°C (39°F). In the cool, scattered light of the forest water begins its long journey down the valley as a lively, sparkling and gurgling stream.

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Water, when it is alive, creates this spiralling, convoluting motion to retain its coolness and maintain its vital inner energies and health. It is thus able to convey the necessary minerals, trace elements and other subtle energies to the surrounding environment. Have you noticed how refreshing and enlivening it is to sit by a healthy bubbling stream?

Naturally flowing water seeks to protect itself from the damaging direct light of the Sun. The reason that you find trees and shrubs growing on the banks of streams is not from people planting them, but because the energies from the flowing stream facilitated their growth there, to shade the water. When a stream is able to maintain its energies, it will rarely overflow its banks. In its natural motion, the faster it flows, the greater its carrying capacity and scouring ability and the more it deepens its bed (Fig. 8.2).

Schauberger discovered the reason for this — that in-winding, longitudinal spiral vortices form down the central axis of the current, moving alternately clockwise and anti-clockwise. The nature of inwardly-spiralling vortical movement is to cool. So these complex water movements constantly cool and re-cool the water, maintaining it at a healthy temperature, leading to a faster, more laminar, spiral flow, ejecting or transforming undesirable substances.

As the stream gets bigger, it is less able to protect itself from light and heat, and it begins to lose its vitality and health, and with this its ability to energize the environment through which it passes.

Fig. 8.2. A longitudinal vortex showing laminar flow about the central axis. The coldest water filaments are always closest to the central axis of flow. Thermal stratification occurs even with minimal differences in water temperature. The central core water displays the least turbulence and accelerates ahead, drawing the rest of the water-body in its wake.

Ultimately becoming a broad river, the increasing silt content makes the water flow more sluggishly and become more opaque. This, however, protects the lower strata from the heat of the Sun. They remain cooler, retaining the spiral, vortical motion which is able to shift sediment of larger grain-size (pebbles, gravel, etc.) from the centre of the watercourse, and keep down the risk of flooding. This motion also discourages the generation of harmful bacteria and the water remains disease-free.

Viktor Schaubberger wrote in 1933 in his book, *Our Senseless Toil*, how he was able to put to practical use his discoveries about water:

It is possible to regulate watercourses over any given distance without embankment works; to transport timber and other materials, even when heavier than water, for example ore, stones, etc., down the centre of such watercourses; to raise the height of the water table in the surrounding countryside and to endow the water with all those elements necessary for the prevailing vegetation.<sup>6</sup>

## The temperature gradient

One of Viktor Schaubberger's most important discoveries was to do with temperature. He showed how small variations of temperature are as crucial to the healthy movement of water and sap as they are for the human blood. He clarified this by identifying temperature change in its relationship to the anomaly point of water +4°C (39.2°F). When the temperature departs from this anomaly point, either up or down, it is said to have a negative gradient. When it approaches the anomaly point, from either direction, or when the groundwater is colder than the air temperature, it has a positive gradient. Heat always moves towards cold.

In the natural process of synthesis and decomposition in all waters, trees and other living organisms, both the rising and falling temperature gradients are active. Each form of gradient has its special function in Nature's great production; the positive (cooling) temperature gradient must play the principal role if evolution is to unfold creatively.

This important factor affects all the features of a river, such as flow velocity, tractive force (shear force), sediment load, turbidity, and viscosity, and everything to do with water management generally, like its

storage and transport through pipes (see Chapter 12). It is because modern hydrologists do not recognize the temperature gradient that they are unable to prevent rivers flooding or to deliver better quality water to our homes.

In Nature, the positive gradient is used for creating and building life forms, the negative for breaking down as part of recycling. Biodiversity and evolution, in order continually to develop more complex life systems, require the finer energies that a predominating positive temperature gradient will provide. These two temperature gradients co-exist in the same environment because they have complementary roles. The problem with our civilization is that we have allowed the negative to become dominant, so we have disappearance of species, and the prevalence of coarser energies that result from a degenerating environment.

The quality of any process in Nature depends on the relative influence of the positive and negative temperature gradients. The way the two forms of temperature interact is of crucial importance, for this affects not only the movement of water, but sap in plants and the flow of blood in our veins. It also determines the configuration, structure and quality of the channels, ducts and vessels surrounding and guiding them, as we shall see later.

Schauberger called the stronger temperature behaviours 'essences,' for they have a critical effect in creating life forms. For example, if the positive temperature gradient is very powerful, then the reciprocally weaker negative temperature gradient will help the manifesting of a high quality substance in material form. On the other hand, if the negative temperature gradient is dominant, what manifests is a material substance of poor quality. For evolution and growth to proceed with increasing quality, vitality and health, which form is uppermost and at what level is significant.

Flowing water behaves according to whichever temperature gradient is active. The positive temperature gradient builds up living systems by cooling, concentrating, and energizing as it approaches +4°C (39°F). The key to this process of healthy growth and development is that the ionized substances are drawn together into intimate and productive contact, and the contained oxygen becomes passive and is easily bound by the cool carbonates,<sup>7</sup> the building blocks of life. The increasing warming of the negative temperature gradient however, reduces the cohering energy and loosens the structure of an organism and the forms start disintegrating. The

oxygen becomes increasingly aggressive and instead of helping to build structures, pulls them apart, encouraging pathogenic disease.

If only our science would recognize the importance of temperature in natural processes and we could rapidly implement changes throughout our technologies, the effect on our environment would be immediate. Our current environmental crises are not limited to increasing global warming through entropic heat pollution. If our technologies were more eco-friendly, there would quickly be a magnifying effect of balancing in the environment, a positive feedback effect, because Nature is always seeking balance. We seem to think that working with Nature is like trying to be honest in our lives (a nice thing to do). In fact Nature's need for balance is so powerful that once we began seriously to work with true ecological integrity, we would be amazed how our efforts would be reciprocated and amplified by Nature.

Schauberger demonstrated, not only that living water possesses extraordinary healing properties, but that it is possible, by designing machines which follow Nature's dynamic processes, to produce this living water from lifeless water.

In this way it is possible to produce quality drinking water for humans, beasts and for plants artificially, but in the way that it occurs in Nature; to render timber and other such materials non-flammable and rot resistant; to raise water in a vertical pipe without pumping devices; to produce any amount of electricity and radiant energy almost without cost; to raise soil quality and to heal cancer, tuberculosis and nervous disorders.

... The practical implementation of this... would without doubt require a complete reorientation of all areas of science and technology. By applying these new found laws, I have already built some large structures for log-rafting and river regulation, which have functioned faultlessly for a decade, and which today still baffle the water hydraulics experts.<sup>8</sup>



## 9. The Hydrological Cycle

In the same way that blood flows through the arteries and veins of the human body, so does water through the lithosphere of the Earth. The cyclical movement of water from subterranean regions to the atmosphere and back again is called 'the hydrological or water cycle.' Today this complete circulation of water is usually interrupted by human intervention, being limited to the atmosphere and the Earth's surface. Viktor called this the half hydrological cycle, the shortcomings of which contribute significantly to our present climate change.

### The full hydrological cycle

The diagram below (Fig. 9.1) shows the full hydrological cycle. At the left hand side the upward, anti-clockwise spirals indicate the evaporation of water from the sea. This rises, condenses and falls as rain. Some sinks into the earth and some drains away over the ground surface, depending on whether the ground is forested and what type of temperature gradient is active. In areas of natural forest where a positive temperature gradient normally prevails about 85% of rainfall is retained, 15% by the vegetation and humus and about 70% sinking to the groundwater aquifer and underground stream recharge.

This underground recharge is important, because water that is linked to the subterranean water system acquires the negative energy charge of the Earth. In a natural forest, the mature trees with deep roots bring up this negatively charged water, along with vital minerals and trace elements from the deeper soils. As we shall see in Chapter 14, trees act as biocondensers, harmonizing the positive energy from the Sun with the negative energy of the Earth. As a result, the evapo-transpiration from the leaves of the trees is a balanced, creative energy. This is shown in the diagram as a different direction of spiral from the evaporation from the oceans, to indicate its superior quality. The forest, as a more dynamic living system, creates transpiration that carries the energy (nonmaterial) imprint of all the resonances of the complex biosystem, including the subterranean

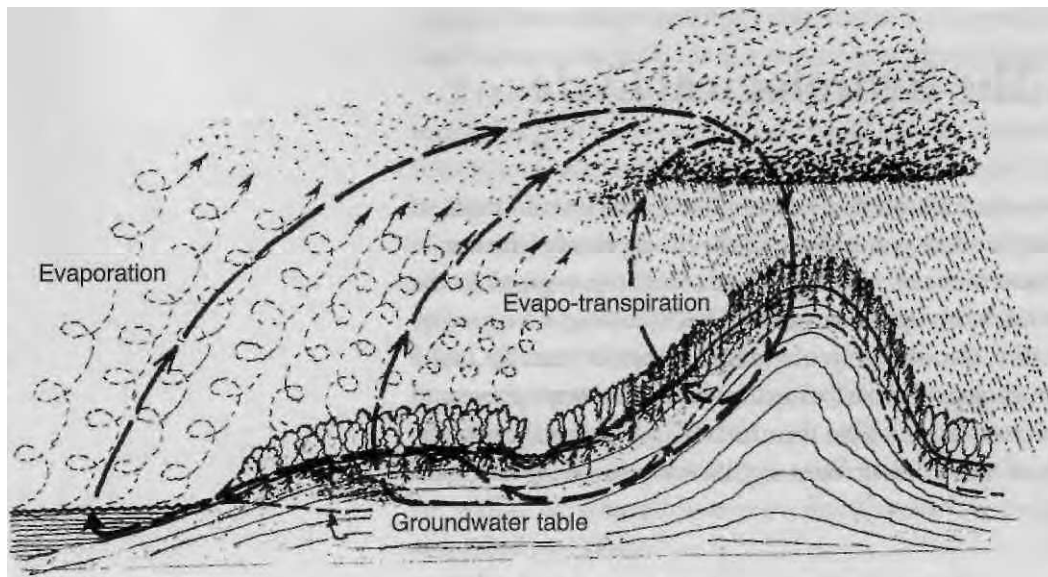


Fig. 9.1. The full hydrological cycle.

The FULL CYCLE of water, is characterized by the following phases:

- Evaporation from oceans and evapo-transpiration from vegetation;
- Rising water vapour;
- Cooling and condensing;
- Formation of clouds;
- Precipitation as rain;
- Infiltrates the ground under positive temperature gradient;
- Recharge of groundwater and aquifers;
- Maintenance and regulation of height of groundwater;
- Formation of +4°C centre-layer of the groundwater;
- Creation of underground retention basins;
- Passage through the +4°C centre-layer of the groundwater;
- Purification at this temperature;
- Further sinking into the subterranean aquifers due to its own weight
- Transition to a vaporous state due to the influence of the Earth's hot interior
- Rising again towards the ground surface with the simultaneous uptake of nutrients;
- Cooling of the water and deposition of nutrients;
- Draining away over the ground surface;
- Evaporating and forming clouds;
- Falling again as rain — and so on.

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elements. Rainfall generated from the forest will carry this beneficial influence. The ocean, although it is recharged by undersea volcanic eruptions and exposure to the atmosphere, mainly consumes all it produces and therefore lacks these dynamic qualities.

This is best explained in terms of homeopathic theory, in which the greater the dilution of a substance, the more powerful its energetic effect. One of the most important discoveries by Professor Jacques Benveniste is that water (even in the form of vapour) carries information.<sup>1</sup> The implication of this is that our tap water may contain the energies that are recycled from human sources, but also that water can be imbued with a healing energy that can be used to treat other water. Some of the domestic water treatment systems now available use this principle.

In the full cycle, water evaporates from the forest and the oceans. The rising water vapour cools with altitude, condenses, forms clouds, with the help of dimethyl sulphide emitted from the leaf protoplasts and from marine algae, combines into larger drops and falls as rain. With full forest cover the temperature of the land surface is cooler than the falling rain, which readily soaks into the ground because of the positive temperature gradient. In other words, the temperature decreases from the atmosphere, through the earth towards the central layer of the water-saturated ground where the temperature is +4°C (39°F). As it falls on the cooler ground, the warmer rain is easily absorbed; it replenishes the groundwater, developing subterranean aquifers. Vegetation depends on groundwater being recharged by rainwater entering under a positive temperature gradient (Fig. 9.1).

The temperature range that life on Earth has adapted to lies roughly between -10°C (14°F) and +40°C (104°F). It is the balanced greenhouse effect that maintains this range. As global temperatures rise with global warming, the stress on all life forms is immense, because they do not have time to adapt to the new conditions.

Water vapour is the principal greenhouse gas. The reduction in evapo-transpiration from the dynamic forests substantially affects the quality of the water vapour and its distribution in the atmosphere. The water vapour created by the natural forest has been balanced by fertile energies from the Earth that bring with it the power to stimulate and heal. Water vapour from the oceans has more of the raw untamed energy of the Sun, and global warming increases the evaporation from the oceans. Without the forest's water, there is a greater contrast between areas with abundant water vapour and

## 9. THE HYDROLOGICAL CYCLE

those with almost none. This greatly disrupts weather patterns, with an increase in violent storms, hurricanes and serious flooding near coasts, while the areas away from coastal winds suffer droughts and freezing night temperatures.

## The half hydrological cycle

Without forest cover, the ground surface overheats, causing a negative temperature gradient in the soil. This means that the cooler rain cannot penetrate into the warmer ground, and fast surface runoff in areas of heavy rainfall causes catastrophic floods. The cause of the floods in recent years, in Columbia, Mozambique, Assam and Bangladesh was the deforestation on high ground.

This disruption of the natural water cycle Schauberger called the half hydrological cycle, which is now prevalent almost worldwide. Notice the difference between Fig. 9.2 below and Fig. 9.1 on p. 118. The drawing below shows that, in the absence of tree cover, the water table has sunk. Once the forest has been removed, the exposed ground heats up rapidly, all the more so if dry, and to much higher temperatures.

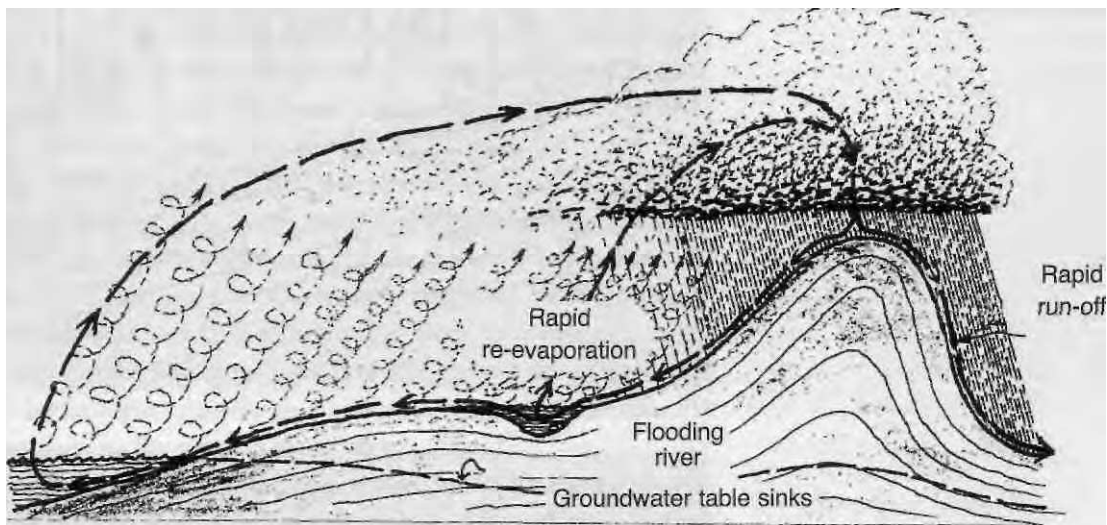
This type of evaporation, now lacking the evapo-transpiration from living things, has more destructive energies. If the rainfall is excessive, then flooding inevitably occurs. In many hot countries denuded of vegetation, dry valleys and creeks can be suddenly engulfed by a wall of water as terrifying flash-floods sweep away everything in their path.

In the absence of trees and ground cover to absorb it, the rainwater spreads widely over the surface of the ground, resulting in massive abnormal re-evaporation. The increase in water vapour in the atmosphere soon causes increased precipitation. What happens is that one flood causes another, while in inland areas, droughts become more frequent. The only answer to this vicious cycle is a massive international campaign to plant trees, particularly in the warmer latitudes.

The most serious result of the half cycle is that there is no replenishment of the groundwater. With the sinking of the groundwater level, the supply of nutrients to the vegetation is cut off. The water that is evaporated into the atmosphere is virtually lifeless, lacking in the energy and the qualities that groundwater acquires. Viktor Schauberger called this a 'biological short-circuit.' The essential soil moisture, trace elements and other nutrients that the tree roots nor-

mally raise to the benefit of other plants sink below reach as the groundwater sinks. This is the cause of desertification, now becoming prevalent in many tropical areas. The groundwater disappears, probably for ever, into the womb of the Earth where it came from.

The limited circulation of the half water cycle increases the intensity of thunderstorms. These can raise the water vapour to levels far higher than normal. At altitudes of 40-80 kilometres it is exposed to much stronger ultraviolet and high-energy gamma radiation, which break up the water-molecule, separating the hydrogen and oxygen



The HALF CYCLE in contrast, has the following features:

- Evaporation from oceans;
- Rising water vapour;
- Cooling and condensing;
- Formation of clouds;
- Precipitation as rain;
- No infiltration due to negative temperature gradient;
- Rapid runoff over the ground surface;
- No groundwater recharge;
- Sinking water table — in the long term;
- Cessation of natural supply of nutrients to vegetation;
- Under certain conditions, major flooding can occur;
- Excessively fast re-evaporation;
- Oversaturation of atmosphere with water vapour;
- Rapid reprecipitation as storm rain.

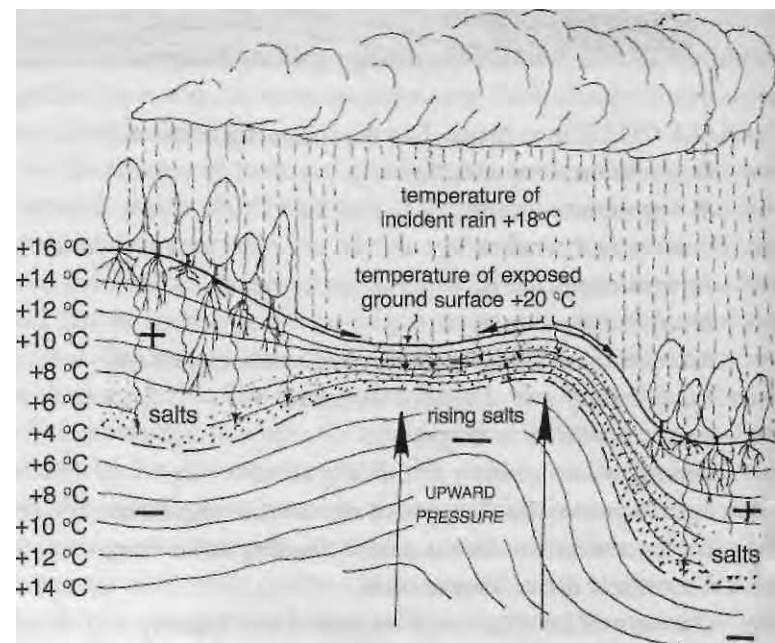
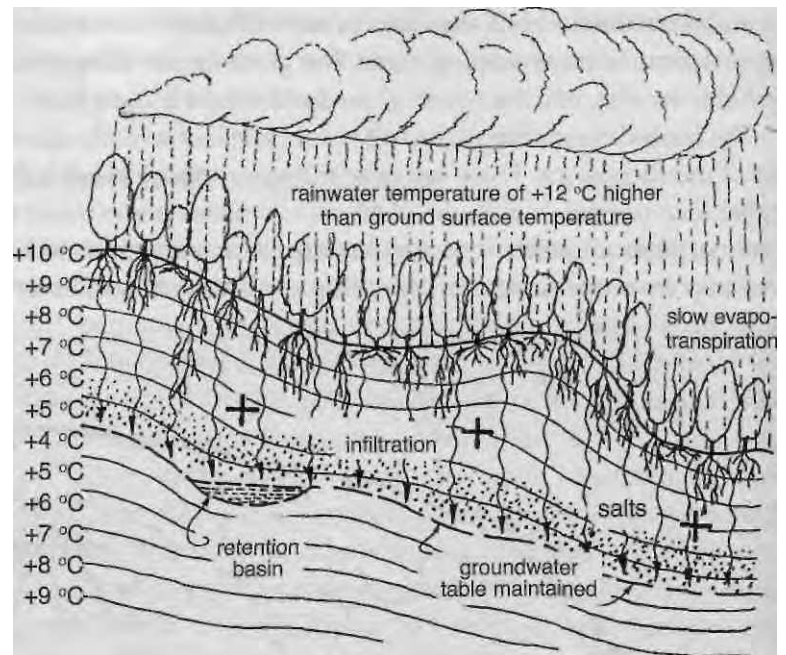
Fig. 9.2. The half hydrological cycle.

## 9. THE HYDROLOGICAL CYCLE



Fig. 9.3 a&b. Positive and negative temperature gradients:

Fig. 9.3 a illustrates a positive temperature gradient — ground cooler shaded by trees — rainwater warmer than the ground surface will soak in easily, recharging the groundwater. But where the surface is unprotected (Fig. 9.3 b) it heats up, does not allow the rainwater to penetrate (negative temperature gradient), causing the water table to be forced upwards, with the dissolved salts, which remain near the surface, possibly causing problems of salination.



atoms. The hydrogen then rises because of its lower specific weight, and the oxygen sinks. That water becomes permanently lost. The effect of global warming is complex. The atmosphere first warms up due to the greater amount of water vapour, some of this increase of heat being offset by the loss of water atoms at high altitudes.

## Temperature gradients and nutrient supply

As we have seen, unless vegetation keeps the ground surface cooler than the falling rain, the water will not easily penetrate the soil. The direction of the temperature gradient indicates the direction of movement. Energy or nutrient transfer is always from heat to cold. So a positive temperature gradient is also essential for nutrients to be able to rise up to the roots of the plants (see Fig. 9.3).<sup>2</sup>

If the surface is well forested, the rainwater is warmer than the soil, and penetrates to the lower strata, replenishing the groundwater body and the aquifers. The salts remain at a level where they cannot pollute the upper strata where they would harm those plants which are salt-sensitive. The groundwater hugs the configuration of the ground surface. Fig. 9.3 shows how the salts in the ground rise near the surface, particularly on a hilltop, when part of the forest is cut down, leaving the ground exposed to sunlight.

Schauberger demonstrated that when light and air are absent well below the surface of the ground, the minerals and salts are precipitated near the temperature horizon of +4°C (39°F). Warm ground will encourage evaporation of the moisture near the surface, so that the minerals and salts are deposited near the surface, lowering the fertility of the soil. If all the trees are removed (Fig. 9.4), there will be no penetration of rainwater; the water table initially rises, due to the now uncompensated upward pressure from below described in the following chapter, bringing up all the salts, but will eventually sink or disappear altogether without the replenishment of rainwater. Fertility can be restored in time only through reforestation, bringing about the reestablishment of a positive temperature gradient.

Replanting must be done initially with salt-loving trees and other primitive plants, as only they would survive under such conditions. Later, due to the cooling of the ground by the shading of the pioneer trees, the rainwater can penetrate the ground, taking the salts with it. Over time, as the soil climate improves the pioneer

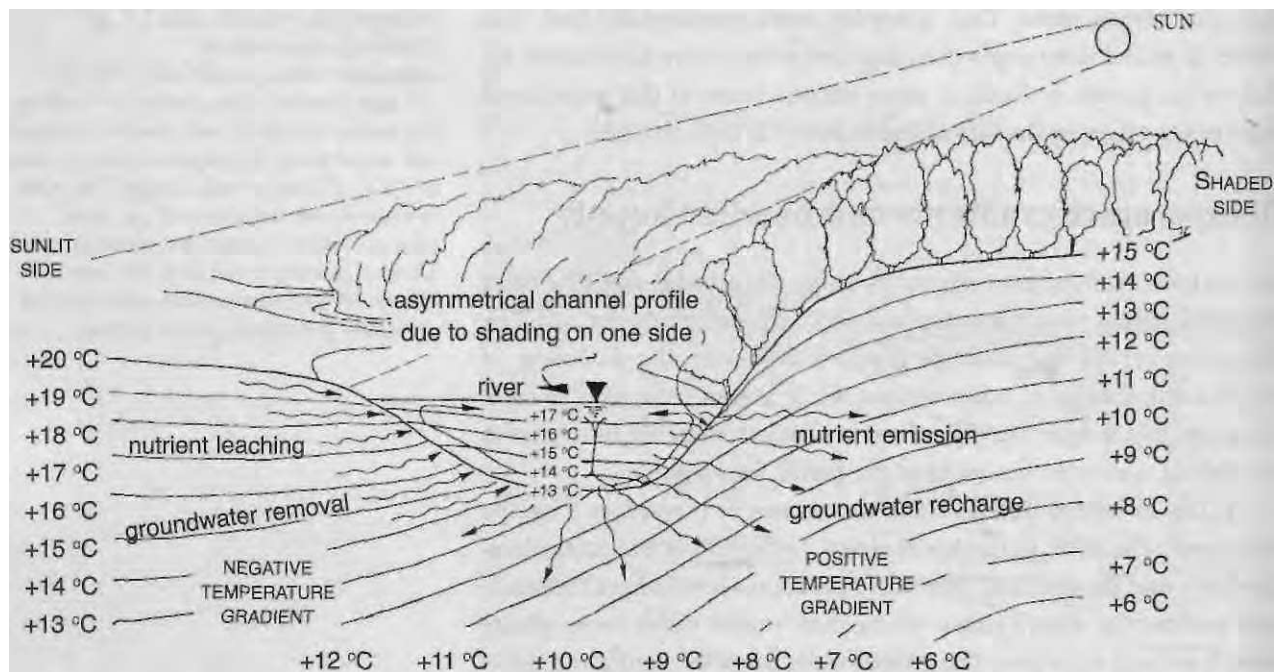


Fig. 9.4. Asymmetric river development. The orientation of a river relative to the Sun's position affects the nutrient supply. Where the river flows east > west or west > east, the side nearest the Sun tends to be more shaded and the water cooler; a positive temperature gradient develops, allowing the cooler ground to absorb mineral-rich waterfront the river, and the soil becomes more fertile. On the side exposed to the Sun, the reverse occurs, with a negative temperature gradient forcing groundwater, with its minerals to leach into the river.

trees die off, because the improved soil conditions don't suit them. Other species of tree can replace them and the dynamic balance of Nature is restored.

Irrigation in hot climates aggravates the problem because, as the ground temperatures cool during the night, the irrigating water can penetrate the upper salt-containing strata. With the increase in temperature during the day, the infiltrated irrigation water with its acquired salts are drawn up, and upon exposure to light and heat are deposited on the soil surface. The seriousness of the problem will vary with latitude, height and season.

All healthy rivers will carry nutrients in suspension that will be absorbed by the vegetation on the river banks if the soil is cooler than the river water. This improves soil fertility and recharges the groundwater. But, if the soil is warmer than the river, due to the absence of protective cover, a negative temperature gradient will cause the nutrients to leach from the soil into the river, which will eventually make the soil sterile and unproductive. The longer a river flows through irrigated, sunlit farmlands, the more it becomes contaminated with salts, artificial

fertilizers and pesticides, making it unhealthy in the lower reaches as a source of water.

In the diagram (Fig. 9.4) opposite, the river water temperature varies from +17°C (63°F) at the surface to +13°C (55°F) at the bottom. Where the ground under the wooded area on one side of the river is cooler than the river water, a positive temperature gradient exists from river to ground. On the opposite side, in the absence of trees, the ground is warmer and attracts a negative gradient from river to ground. The diagram shows nutrients being removed from the warmer bank and deposited on the opposite, cooler bank.

Where the tree cover cools the river, it flows faster with a laminar structure, removing sediment and deepening its bed.

The rivers are the arteries of Gaia. If they are not allowed to operate as natural conveyors of energy and nutrients to the land through which they flow, the fertility of the land gravely suffers. If we were really to take care of our rivers, protecting their banks from overheating, and allowing them to flow sinuously as they will, rather than make them follow straight lines, we would be taking important steps to give back to Nature her own power.

## 10. The Formation of Springs

Before the installation of public water networks, springs were the most valued or sometimes the only sources of drinking water, and they still are in many parts of the world. Settlements would establish around a spring that delivered high quality water. Possibly because of the connection between living water and good health, some established a reputation for curative powers. Viktor Schauberger insisted that the high quality water produced by his springwater machine had healing qualities.

### The veneration of springs

Springs have long been associated with folk medicine, ritual and religion, frequently being reported as places of power in the landscape. Usually, springs thus endowed are called 'holy wells' which is confusing, because the word derives from the Anglo-Saxon for spring — wella, (hence the expression to 'well up') not for its modern use as a shaft excavated to reach the underground water table. The tradition of venerated springs is found in all cultures and major religions, including the earliest known to us. The most common association is the bestowal of supernatural qualities, but more specifically as the abode of spirits or deities, or being linked with holy figures or saints. In Britain, in most cases the saints named had no connection with the site, but their qualities may be associated with those the previous pagans had ascribed.

The waters of most sacred springs are credited with healing powers, and with cures accomplished by bathing or drinking. In British lore the most common affliction claimed to be healed by springs is infertility, followed by eye complaints. However some springs are regarded as so powerful — as at Lourdes in France, or Bath in England — that they are reputed to heal many diseases. Offerings were made to the pools served by the springs, either as part of the locally established ritual, or as a 'trade' for a wish to be granted. Many 'wells' were 'dressed,' or decorated with flowers, paintings, statues or strips of cloth, a tradition found all over Europe and Asia, in Africa and Central America.



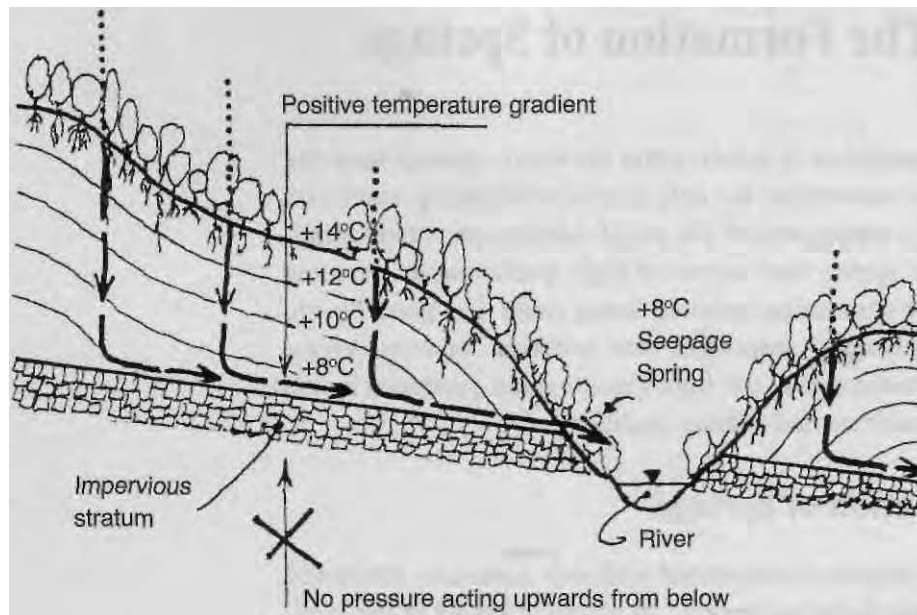


Fig. 10.1. Seepage spring.

Seepage springs occur when water infiltrating the ground (positive temperature gradient) encountering an impervious layer, seeps down this slope emerging where it meets the ground surface. The amount of the infiltrations determines the outflow rate and its temperature that of the surrounding area, seldom very cold.

Natural springs would be valued also because the quality and reliability of the water flow in times of drought might make the difference between life and death. It is not hard to see why people invested these sites with magical powers, or seeing them as inhabited by a living spirit who was the guardian of the waters. It is likely that many of our forebears would empathize with Viktor Schauberger's vision of water as 'the blood of the Earth' when they saw the pure, cold, nourishing liquid issuing mysteriously from the womb of the Earth.

Rivers frequently have their source at a spring.<sup>1</sup> The source of a great holy river is regarded as particularly sacred. Many churches and monastic institutions are associated with springs, the churches using the water for baptism. The monasteries pioneered the capping of the springs to deliver the water through wooden or stone 'conduits.' These proved to be the salvation of growing urban populations in England who, after the dissolution of the monasteries in the sixteenth century, would take 'feathers,' or branch pipes, off these monastic conduits. Like the springs from which they derived, in some localities these conduits were often venerated and adorned with flowers and gilded branches.

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When the rationalism of the Enlightenment replaced the superstitions of an earlier age, some explanation had to be found for the curative powers of certain famous springs. This led, in the 18th century, to the birth of the spa culture, and doctors would examine any deposits left behind when they had boiled away the water, in order to identify this and that mineral as the true elixir that would give legitimacy to their spa water. During the Protestant Reformation in England, and then with the decline of rural populations, many sacred springs fell into disuse, being rediscovered by Irish immigrants in the nineteenth century, whose Celtic-based Catholicism still had strong pagan roots.

Today, with the revival of ancient rural traditions, many sacred springs are being restored in Britain and in Continental Europe.

## Seepage springs

What is generally understood as a spring is actually not a true spring, but a seepage spring which is the overflowing of surplus water from soil and rock strata that have a limited depth (Fig. 10.1). Rainwater which is warmer than the ground (a positive temperature gradient), soaks in and descends until it reaches an impervious layer like clay, which channels it out as a stream to the surface again, lower down. It acts by gravity. The temperature of the water will be that of the strata from which it emerges, probably between +6°C (43°F) to +9°C (48°F). This water will contain some trace elements, minerals and dissolved salts but, generally speaking, not in such a broad spectrum as true springs. The seepage spring responds quickly to variations in precipitation, frequently drying up in a hot summer, and flowing strongly after heavy rain.

## True springs

A true spring originates from much deeper strata (Fig. 10.2). Water collects in ancient aquifers and retaining basins over many years, and the water emerging to the surface might be hundreds of years old; or even thousands in the case of the famous therapeutic hot springs. Because of their age, these spa waters are extraordinarily rich in well-balanced minerals. The rich waters of the Hunza Valley in Pakistan, or the Caucasus mountains, which are credited for the longevity of the local people, also originate in true

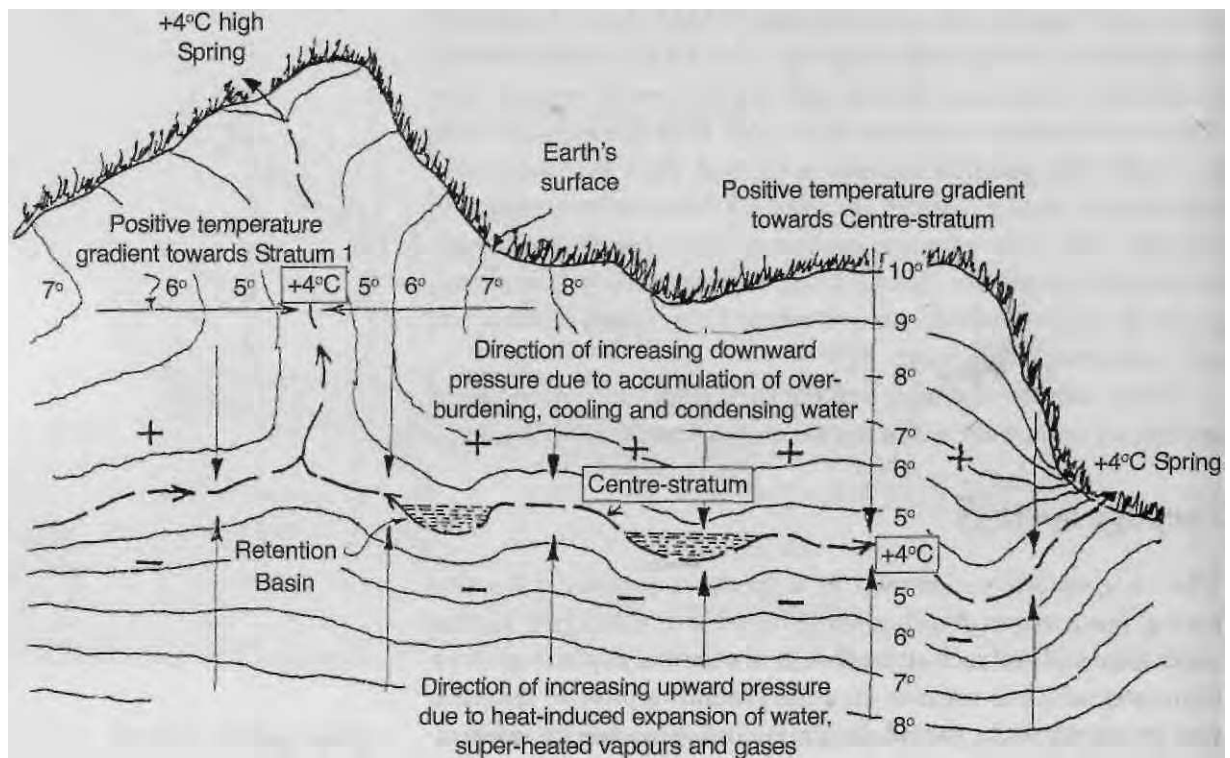


Fig. 10.2. True springs and high altitude springs. These depend on the existence of the 39°F (+4°C) denser water level which is called the centre stratum. This gets squeezed between the weight of water in the rocks above, and the water strata below. At 39°F (+4°C) it will compress no more, and has to move vertically or laterally, eventually emerging as a spring. This is why they are normally very cold and may appear on mountain tops.

springs. The difference here is that, emerging in the high mountains, these waters are then augmented by rich glacial waters, and by minerals from the action of the aggressive mountain streams eroding the surface rocks.

The rainwater penetrates the ground surface under the influence of a positive temperature gradient, in a way similar to that of a seepage spring. But it is drawn down much more deeply, helped by the increasing pressure, so that it condenses and cools to around +4°C (39°F). Being immature water, it will absorb what it can, so it removes salts from the upper layers of the ground, depositing them later as the water condenses and cools with depth. This makes the upper layers more fertile, and the salts are now available to deep-rooted trees that have the ability to metabolize them, converting them to nutrients for more shallow-rooted plants.

The downwards-percolating rainwater increases the pressure on the groundwater body, pressing the lowest layer into rocks that

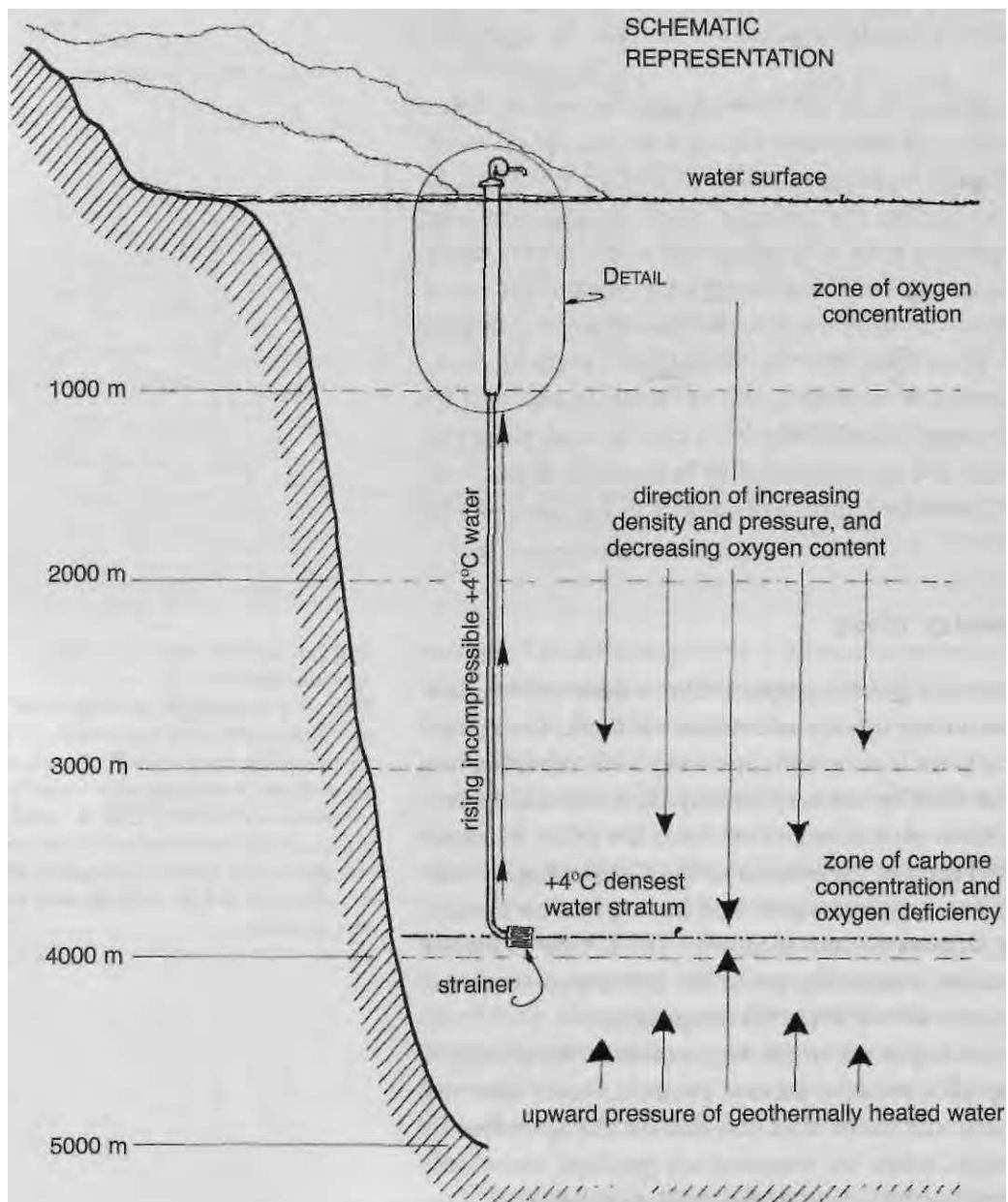
are affected by geothermal heat. These are caused to expand, compressing the layers above. But the +4°C (39°F) stratum water is already at its densest and virtually incompressible at this temperature, so all it can do is to push out laterally, providing the springs with their flow. This action explains how springs can emerge from high mountain peaks at such cold temperatures, where there would be insufficient local collection for a gravity seepage.

Rain absorbs oxygen in its fall through the atmosphere. After it enters the ground and percolates through the soil, plant roots and organisms reduce its oxygen content. So when it eventually emerges as a true spring, the water is often oxygen-deficient, though rich in carbonic acid. It is dangerous to drink this water directly from the spring, for being hungry for oxygen, the water can steal it from susceptible organs, like the stomach, causing great discomfort. If breathed directly, the carbonic acid can damage the lungs. Known to mountain folk as 'damp-worm,' and by miners as 'choke-damp' respectively, both can be fatal. However, within ten metres of the source, the water has usually, through its active movement, absorbed sufficient oxygen to be quite safe to drink.

## How springwater rises

Viktor Schauberger designed an experiment to demonstrate how groundwater rises during the day and recedes at night. The equipment consists of a glass U-tube with open ends, one of which has contact with the air only by two very fine capillary tubes, the other end being open. Each arm is sealed off from the other by some saltwater-saturated sand at the bottom of the U-tube. High grade springwater with low oxygen content, and having had no contact with strong light, is inserted into each arm. The U-tube is placed in a soil-filled bucket, containing ice at the bottom to create an artificial environment of +4°C (39°F) temperature.

When the bucket is put out in the Sun, a positive temperature gradient is set up and, because there is greater contact with the outside atmosphere, the water level can rise on the open end of the U-tube. At night, when the temperature gradient decreases, the water level rises on the side with the capillary tubes, falling on the open side, and rising on the partially blocked side. (This



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experiment is illustrated on p. 202 (Fig. 15.3), the experiment originally being designed to show how sap rises and falls in a tree.)

## Producing energy from the ocean

Viktor Schauberger alluded to the simplicity of emulating the dynamics of true springs for generating energy, although he gave no details. Having gained some insight into Schauberger's thinking, Callum Coats described how this might be done, publishing the process, so that no commercial company would be able to patent the idea.

Describing the formation of true springs, we spoke of the deep groundwater having had its oxygen content removed by needy roots and organisms on its journey through the soil, but having instead a concentration of the female fructigenic carbonates. At its most dense at the +4°C (39°F) deep stratum, it is squeezed and can be lifted up to the highest mountain tops.

The water of the ocean deeps is in a similar condition of density at the +4°C (39°F) deep stratum, but also under high pressure because of the enormous weight of water above it. A long pipe would be lowered from the surface of the ocean to allow this oxygen-hungry water to rise in order to drive electric generators at the surface.

This would not be a viable system, however, without some essential additions that Schauberger added to increase the power of the rising abyssal water (Fig. 10.3). The pipe would be of double-spiral design, with vortex-inducing vanes similar to those used in the Stuttgart experiment (see Chapter 14). The bottom end of the pipe would have a tangentially-arranged vortex inducer, as well as a strainer to keep out marine creatures.

At a water level nearer to the surface, atmospheric air would enter through a one-way filter in order to introduce oxygen to the hungry abyssal water. (The filter would accept the smaller oxygen molecule, but exclude the larger water molecule.) On absorbing the oxygen, the rising water warms and rapidly expands with sufficient power to drive the generators, which would not be of the conventional design that destroys the water's structure, but with centripetal impellers that improve the quality of the water.<sup>2</sup>

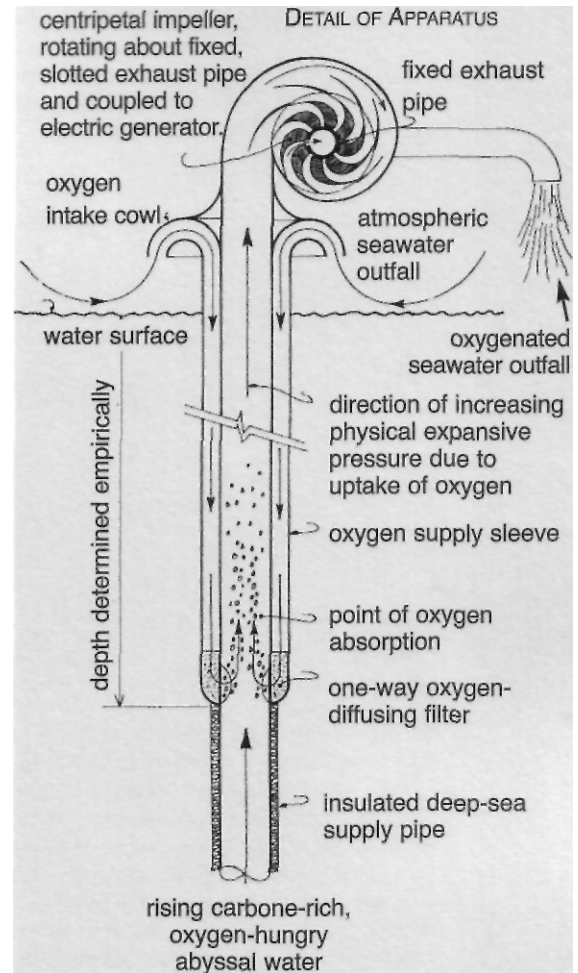


Fig. 10.3 (opposite). Free energy from the deep ocean.  
Callum Coats' development of Viktor Schauberger's idea.

Fig. 10.4 (above). Detail of apparatus in figure opposite.

# 11. Rivers and How They Flow

If we understood the importance of water both for the environment and for life, we would nurture and protect our rivers, which are the great arteries of the Earth. Healthy streams and rivers are water at its most active, powerful and playful. In our ignorance of how water needs to move, we restrict rivers with embankments and other unnatural constructions. We treat rivers as sewers for waste, and we extract the energy and spirit from their form.

For scores of thousands of years, since people started to settle on the land, our forebears were aware that their prosperity depended on the river. Soils are quickly depleted of their nutrients by agriculture, particularly if intensive. Remineralization by regular flooding of the river was vital to obtaining good crops. This allowed the great civilizations to grow and flourish, in Mesopotamia, the valleys of the Nile, the Yellow River and the Indus, to name a few.

Today's technocrats have a need to control this apparently chaotic behaviour of the natural river, by steering the flow, sometimes behind high banks, and disregarding the ecosystem, to the great loss of fertility of the surrounding fields. Modern artificial fertilization (NPK — nitrogen, phosphorus and potassium) cannot take the place of Nature's remineralization; in fact it often causes great problems through creating imbalances and pollution.

## Stages of a river

A river has three stages of life. Its youthful stage energizes the water as the steep landscape puts it through vigorous tumbling, spinning and intense vortical movements. The immature cold water is hungry, taking up minerals as it scours the rock, cutting gullies and steepening the sides of the valley, more especially when it is in spate. It is oxygenated in rapids and waterfalls. It is put through exercises that it will use well when it matures.

When the stream leaves the steep country, the flow slows, and some of the heavier rock matter it carried in suspension is deposited, to be picked up again when the flow accelerates. The water is now mature, having absorbed minerals and generative

energies, and if it is prevented from excessive warming by trees on its banks, it recharges the groundwater of the surrounding countryside. The richness of movement of the young stream is carried into the body of the meandering river. The water is creating its own form which in turn regulates its flow.

Entering the plains the river, in its natural way, would meander across the flat country, and when a bend twists back on itself, a shortcut will be created at flood time, leaving behind an oxbow crescent lake. It is in the plains country mostly that people try to manipulate the river, heavy with silt, by straight embankments to stop the river spreading where it wants to. These natural floods are not particularly destructive, and remineralize the soil which becomes much more productive. But technical man believes he can control Nature. The old river is now typically forced to perch sometimes 50 feet above the surrounding countryside. If the river should burst its artificial banks at this stage, the flooding is catastrophic. Lacking its normal twisting movement and positive temperature gradient which keep the silt in suspension, it is deposited, blocking the channel. Its natural path thus obstructed, it becomes angry and unpredictable. There are now very few major rivers which are allowed to flow naturally.

## Temperature and the movement of water

Viktor Schauberger made inspired studies of the natural flow in rivers. He found that the temperature gradient in moving water plays a very decisive role both in the way it moves and in the structure of the water masses within the river.

To regulate a waterway by means of the riverbank itself is verily to fight cause with effect... It cannot and should not be the task of the river engineer to correct Nature by violating her. Rather, in all watercourses requiring regulation his job should be to study the natural harmony of the river, and to emulate the examples that Nature provides in the way of healthy streams ... Every violation, however, rebounds on the perpetrator ... As water flows down a natural gradient, it does so according to a sublime inner law whose power our hydraulic experts are quite unable to comprehend ... The more the engineer, ignorant of the nature of water, tries to channel water by

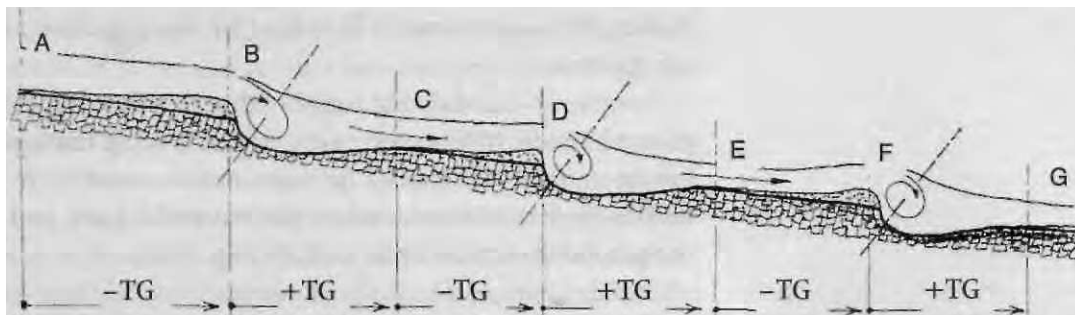
the shortest and straightest route to the sea, the more the flow of water weighs into the bends, the longer its path and the more destructive and the worse the water will become.<sup>1</sup>

The variations in the temperature of the water-body are so subtle, within a range of 0.1 °C to 2.0°C (0.04°F to 0.08°F), that contemporary hydraulic engineering practice has never felt they were significant. Viktor Schaubberger, however, considered the temperature variation absolutely essential for all natural water resources management. He insisted that no artificial constraints on the river could ever be successful unless these variations were taken into account, since whether a river removes, transports or deposits its sediment is dependent upon the water temperature and the temperature gradient predominantly active along its course.

## Creating a positive temperature gradient

When water descends a gradient, in the course of flow under natural conditions, it rhythmically first heats up and then cools down. The degree of heating depends on the amount of friction with the riverbed, the external temperature and the extent to which the water is directly exposed to the Sun. Only a minute change in temperature is required for water to pick up, transport or deposit its sediment, but the type of temperature gradient prevailing determines the action. A negative temperature gradient causes the deposition of sediment, and a positive temperature gradient provokes its removal. The temperature gradients alternating too suddenly can, however, cause the scouring or deposition of gravel to become chaotic.

Fig. 11.1. Alternate heating and cooling (breathing) rhythms in river flow. Friction with the river bed gradually warms the river (negative temperature gradient) so that it starts to deposit its suspended sediment. When this reaches its maximum, an overfall occurs, producing a horizontal barrel vortex that cools the water (positive temperature gradient), until the river gradually warms up again. Schaubberger likened this to the river 'breathing.'



In Fig. 11.1, for example, from A to B the temperature gradient is negative. From A to B the water gradually heats up and in the process is unable to retain the sediment in suspension and drops it progressively as the water becomes warmer. At B, the zone of maximum deposition, the accumulated material results in an overfall that, in turn, creates a horizontal barrel vortex immediately downstream. This vortex, however, cools the water and therefore from B to C the temperature gradient becomes positive. The sediment is once more picked up and transported. Upon reaching C, the effect of the positive temperature gradient gives way to its negative counterpart and the suspended matter is again dropped, reaching a maximum at D.

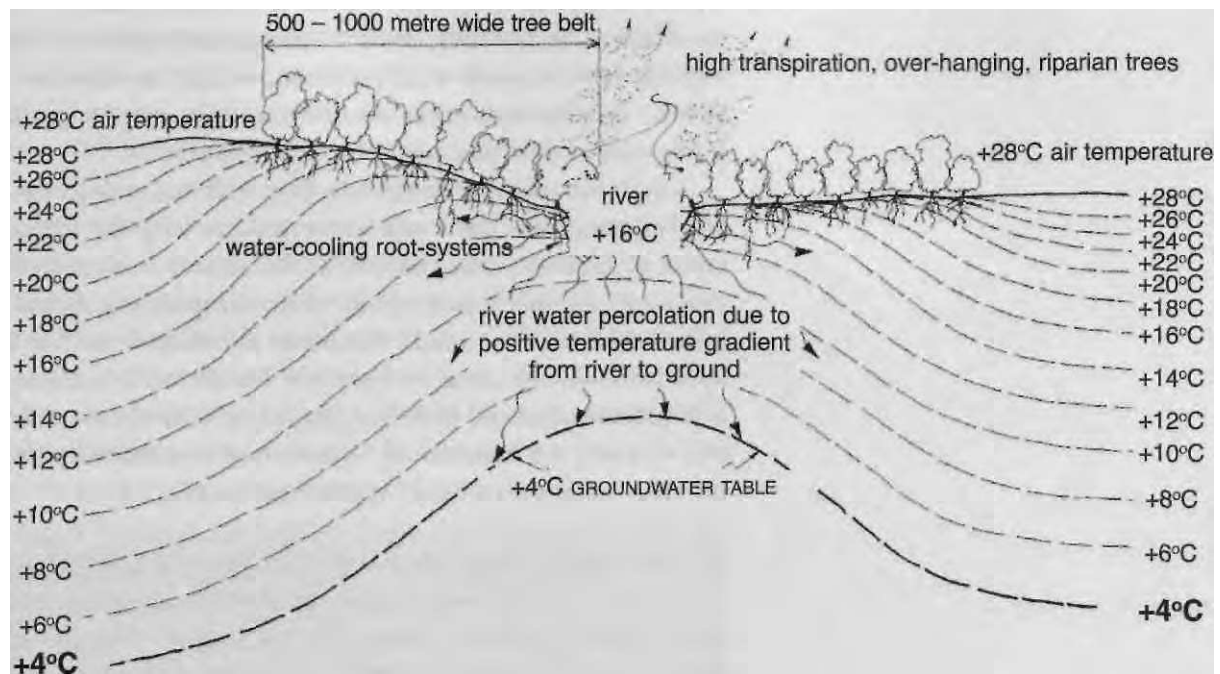
This pulsation or alternation is like breathing; a positive temperature gradient representing the inbreath, the absorbing, material-collecting movement; the negative temperature gradient representing the outbreath, where the energetically transformed matter is exhaled from the system and deposited. In order to regulate a river naturally and successfully, it is essential to study the alternating sequence of the temperature gradients. A stretch of river with a positive gradient is less likely to flood, since only minor sediment deposition will occur. If the danger of flooding is to be reduced then a positive temperature gradient must be recreated or its duration extended. This can be done in four principal ways:

1. By shading and cooling the river through the replanting of trees, particularly at the bends, where the friction and therefore the warming tendencies are greatest. Tree species with a high evaporation rate should be planted. Through evaporation the sap in the tree is cooled and circulates down to the roots under the river bed, cooling the water as well. This kind of tree therefore acts like a refrigerator.

In order to maintain the health of the river, there should be a belt of trees 500 to 1000 metres wide. Rivers flowing through cleared, barren countryside should be reforested in order to re-establish healthy flow conditions, restore the nutrient supply and recharge the groundwater table in its vicinity (Fig. 11.2).

2. By the construction of appropriately designed dams in which the temperature of the discharge can be controlled according to the





prevailing air temperatures and the water temperatures of the flow downstream.

Current practice with most dams and water storage facilities is to release either cold bedwater from the bottom sluices or warm surface water over the top of the dam wall, down the spillway. This can have disastrous consequences unless the temperature of the water released or its possible effect on the downstream flow regime is taken into account. Warm water, for example, discharged into a stretch of river where the temperature gradient is only slightly positive, will effectively cancel the effect of the positive gradient, resulting in the automatic and almost simultaneous deposition of silt and sediment. The result will be flooding.

On the other hand if only the cold bedwater is released, it may overcool the lower reaches, causing excessive scouring and the transport of very heavy sediment loads which the lower flow regime may be unable to handle. This may be because of the slope of the bed-gradient and thereby the speed of flow, the width of the channel — wide, shallow channels dropping sediment more quickly, the temperature gradients operative lower down, etc. Each

Fig. 11.2. Groundwater recharge through river bank reforestation. The trees act like a refrigerator, cooling the ground, which allows a positive temperature gradient to draw water from the river to recharge the water table.

type of discharge eventually produces the same results — silting up followed by flooding. Such discharges also produce what has recently been termed 'cold pollution,' which can destroy downstream fish life and other aquatic creatures due to the sudden influx of far-below-normal water temperatures.

Viktor Schauberger designed a dam with outlet sluices at different heights on the dam wall to correspond with the temperature layers of the dam water (warmer at the surface, coolest on the bottom). An automatic monitoring of air temperature would determine which outflow would discharge the water from the dam at approximately the same temperature. The aim of this arrangement is to remove large and therefore disruptive temperature differences and to bring the external air temperature and the temperature of the river water into a closer approximation (Fig. 11.3.).<sup>2</sup>

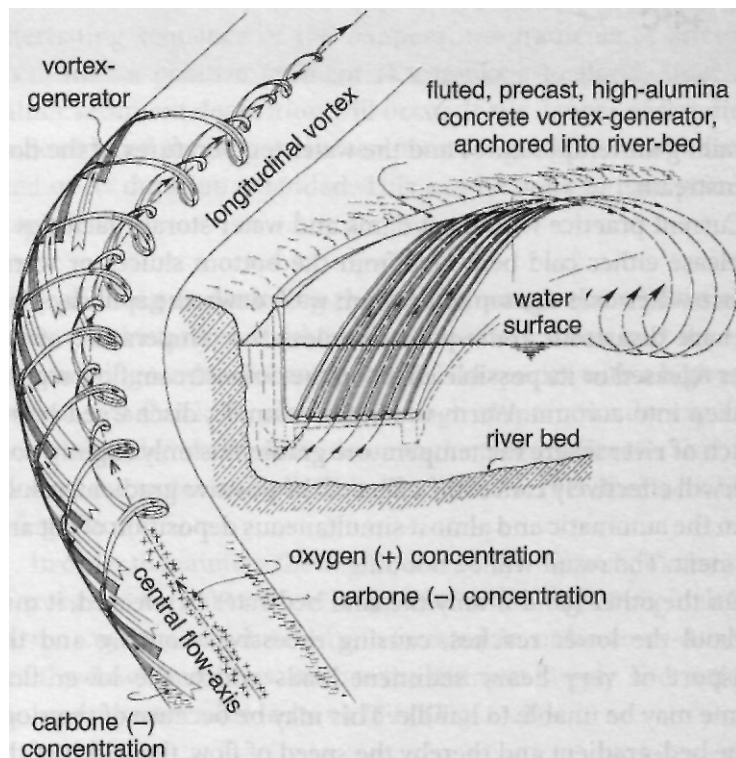


Fig. 11.3. An ingenious (but complex) method of freshening and re-energizing a river.

By installing pre-cast concrete guide vanes that generate a cooling longitudinal vortex on a river bend, which brings the growth-enhancing substances (carbones) on the riverbed and near the banks into contact with the oxygen in the centre-stream; the accumulated energies from this synthesis release nourishing sales into the river banks between the bends.

3. By installing flow-deflecting guides which direct the flow of water at the bends towards the centre of the river and simultaneously cause the creation of cooling longitudinal vortices. Viewed along the direction of flow, these induce anti-clockwise rotating vortices at left hand bends and clockwise vortices at right hand bends.

The flow-guide or vortex generator (see Fig. 11.3) is made of pre-cast concrete, its curved surface fluted with grooves running parallel to the direction of flow, to prevent any lateral slip. It is triangular in shape, the apex pointing downstream. The wider, upstream end of the triangle is horizontal and flush with the riverbed, so as to scoop up the onflowing water and curl it over centripetally (inwardly spiralling) into a vortex in the centre of the channel. This movement gathers up the suspended and dissolved growth-enhancing substances (carbones), from near the banks and the riverbed, allowing them to mix with the dissolved oxygen which in all healthy streams collects in the central flow axis.

These (negatively-charged) fructigenic carbones become energized when moved centripetally and are thus able to combine with the fertilizing (positively charged) oxygen. The oxygen is cooled by a positive temperature gradient, resulting in a freshening and reinvigorating of the water. At the shallower parts of the river between the bends, the accumulated energies from this organic synthesis allow the discharge of nourishing salts into the groundwater in the banks.<sup>3</sup>

4. By the implanting of 'energy-bodies' in midstream, anchored to the river bed, which re-energize the water by forming natural longitudinal vortices. These would be used where the flow-guides are inappropriate — in the straighter stretches of a channel for instance — and where the removal of sediment is desirable. Although never described by Viktor Schauburger in detail, these could take the form of egg-shaped longitudinal vortex-generators with neutral buoyancy achieved through small holes allowing penetration of the outer water. Schauburger may have applied this principle from observing the stationary trout.

Vortices may also be introduced by placing large (preferably metalliferous) boulders in the centre of the channel. Schauburger found that the boulders that 'floated' in a very cold stream contained metal oxides and silicates, so these stones would actually increase the

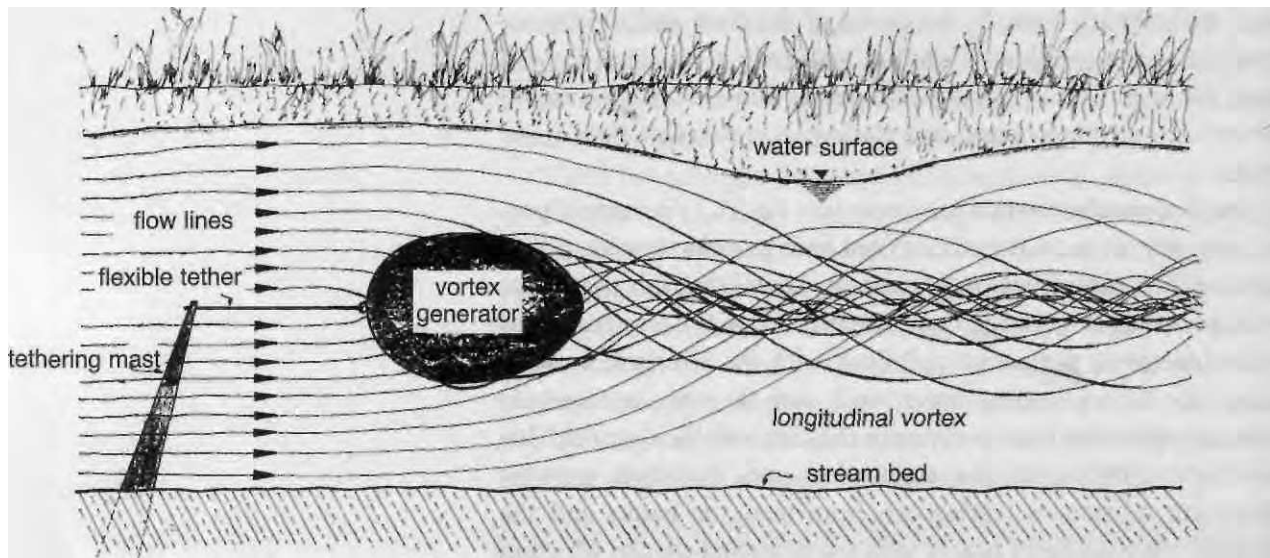


Fig. 11.4. An egg-shaped body to generate longitudinal vortices.

Another way to increase vitality and electrical charge in streams.

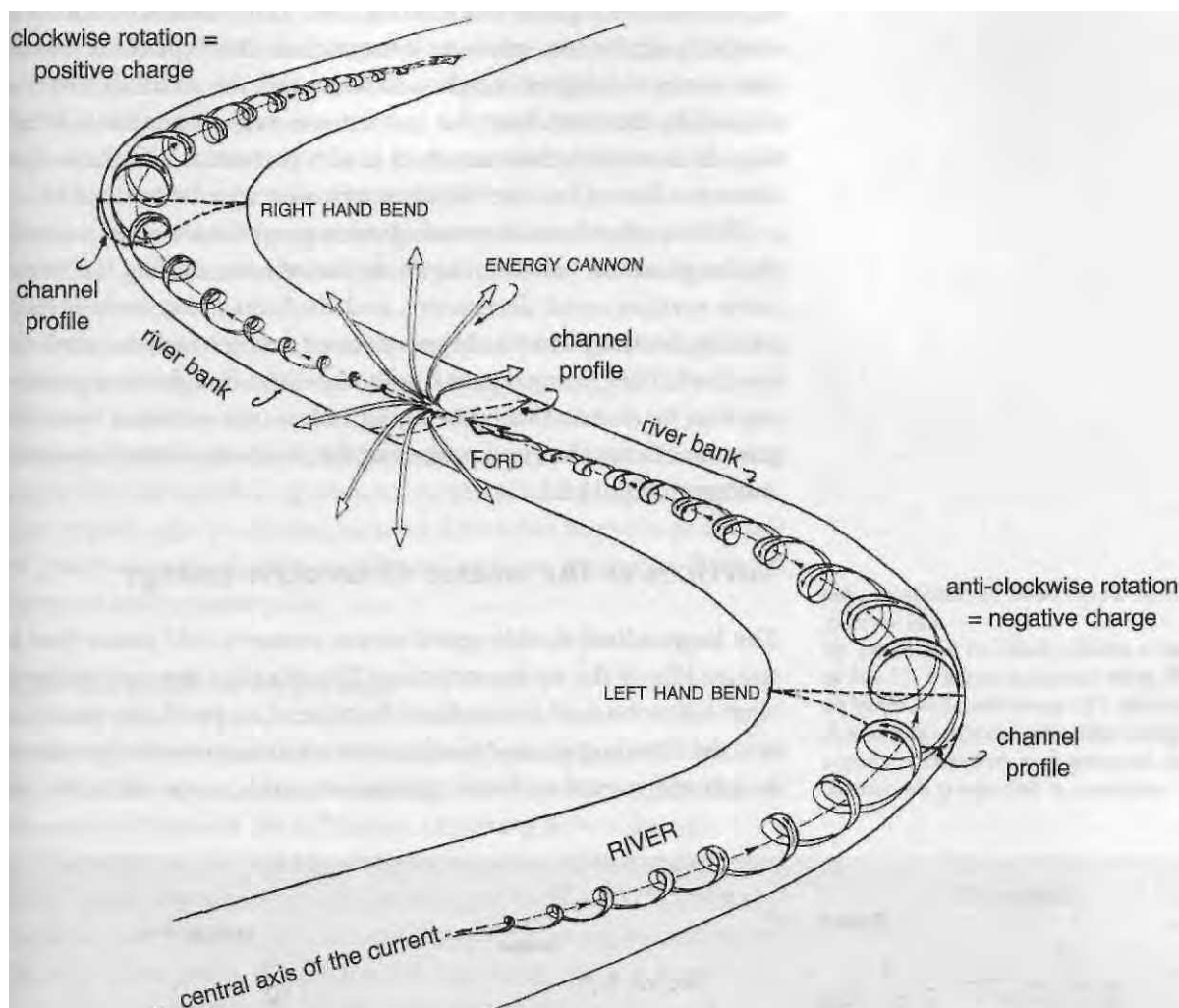
energy of the water. Water carries an electric charge. If the water is caused to rotate, a biomagnetic field would be created which would enhance the vitality of the life-enhancing elements (fructigens, dynagens and qualigens) and therefore the general health of the water.

Schauberger once admitted making use of 'energy-bodies,' when he secretly installed them during the night in a sediment-choked stream. By morning the sediment had disappeared, the channel bed deepened considerably and the natural flow of water restored. The engineers in charge of the stream's regulation were amazed.

## The formation of vortices and bends

We have seen that energy is always connected with movement. The natural movement of water is sinuous, convoluting and vortical. Without such movement there is no polarity. Vortices, however, cannot form without the existence of polarities. Through the action of vortices come rhythms, the pulsations that act as a gateway — a breathing process that the river performs for the environment.

There are three kinds of vortices that form in a river. The principal one, responsible for the river's health is the longitudinal vortex (see Fig. 8.2) which is naturally generated at river bends. The coldest water filaments are those closest to the centre and they,



being subject to the least turbulence, move fastest, pulling along the outer water filaments in their wake. The outer water filaments create the turbulence that keeps the riverbed clear of silt, becoming infused with trace elements and nutrients, and building up its internal charge of pure energy that is released as the longitudinal vortex weakens (Schauberger called this release the 'energy cannon').

Then there are the transverse vortices that form at right angles to the bank. These are caused as a lower layer of laminar-structured water slips faster than the layer above it. These mix the water, but at the same time cool it, because the water temperatures within the centre of these vortices are identifiably cooler than those without, the

Fig. 11.5. Energy release in the environment.

As the longitudinal vortex forms at a bend in the river (see Fig. 11.3), the water cools and grinds sediment, releasing nutrients into the river; when the vortex slows down after the bend, the water warms in the now shallower riverbed and begins to deposit its store of nutrients and trace elements; then just before a new vortex starts to form in the reverse direction at the next bend, energy is released into the environment; Viktor Schauberger called this the 'Energy Cannon.' If the river has been badly regulated, this discharge could be of damaging energy.



uppermost vortex train manifesting itself as the familiar backward-breaking ripples seen on rivers at the surface. This type of vortex also distributes the lighter weight sediment and the nutrient material carried by the river from the centre towards the river bank. While they do increase turbulence, their action is more as a brake to slow down the flow of the river which might otherwise be too rapid.<sup>4</sup>

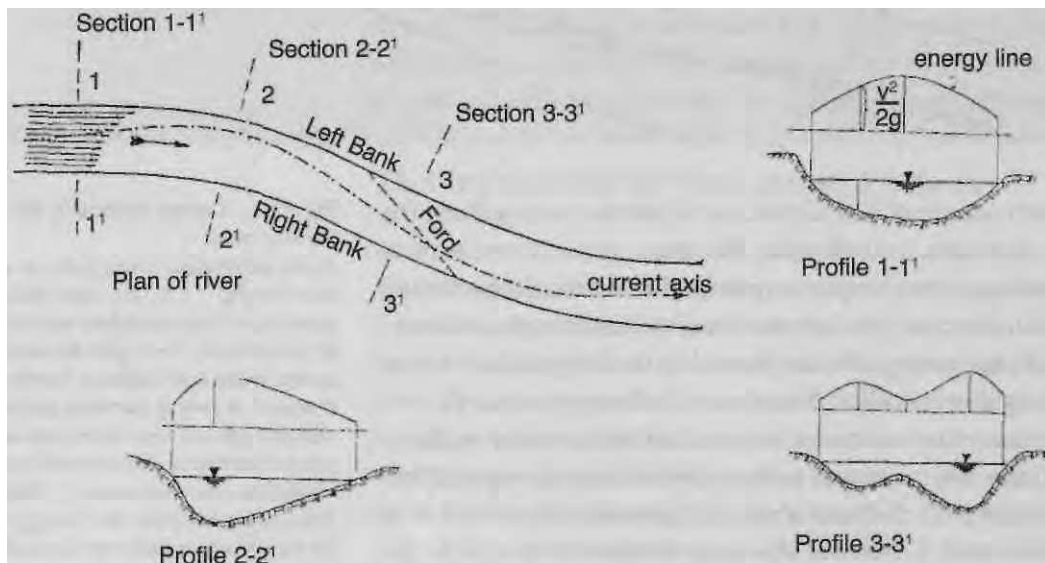
On the other hand, increasing water temperature often weakens the longitudinal vortices, the rising turbulence making the transverse vortices more destructive, and the banks may be breached, causing flooding. The third type of vortex acts vertically towards the river bed. They may gouge out potholes with a boulder as a grinder, but can be destructive by bringing radon-type energies from the ground into the river and projecting them into the immediate environment. (Fig. 11.5.).

## Vortices as the source of creative energy

The longitudinal double-spiral vortex creates a cold dense flow in the middle of the vortex structure. This is called the core-water, or what Viktor termed an 'emulsion because of its particular qualities. It is the breeding ground for the most vitalizing energies produced by natural river flow. Finely ground minerals, trace elements and

Fig. 11.6. River bend formation in plan and section.

If the river is initially shaded on both banks, the profile of the channel at section 1-1<sup>1</sup> will be symmetrical. The curved line at the top of the diagram reflects the velocity of flow at each vertical, increasing from the banks, reaching a maximum at the centre of the channel.



organic substances are spun into this belt of rapidly rotating core water (emulsified) that is composed to a large extent of ionized elements. What this does is to enable new combinations and recombinations of the various elements and suspended substances. This is a process that Viktor called 'cold fermentation,' which is very much associated with longitudinal vortices. These are beneficial because the cooling makes the oxygen and silicates more passive and able to combine with carbonates, which then produce a fructigenic or growth-promoting effect.

Overheating of the water creates other types of vortices that are not so beneficial. These might be vortices forming laterally across the river (transverse vortices), or vertical vortices ascending to the surface from the river bed. In these the oxygen is heated, becoming aggressive, and producing low quality, germinating-inhibiting energies or pathogen-producing bacteria. This often happens as a result of poorly conceived river regulation, and can propagate harmful energies to the countryside.

## The formation of bends

A river will always follow a sinuous energy-generating path, because this is in its nature, unless mountains or other immovable objects prevent it. Rivers are the mirrors of an unseen flow of energy.

The water on the right bank heats up where it has been exposed to the Sun's heat (see Fig. 11.6 section and profile 2-2<sup>1</sup>); the water becomes more turbulent and begins to decelerate compared to the main body of water. The water flowing along the left-hand bank which is cooler and faster moving then overtakes the slower moving water and curls towards the right around it, due to the increasing turbulence and deceleration of the warmer water, eventually creating a bend. The faster flow will pull the heavier sediment centrifugally to the left, while sediment on the right is scoured out by the colder water. Meanwhile at this point the cross-sectional profile of the river becomes asymmetrical, due to the varying flows and temperatures, the coldest water flowing in the deeper section of the channel.

The cold water now flows on the other side of the channel; a bend is formed in the opposite direction due to the momentum of the cold water-masses, (see section and profile 3-3<sup>1</sup>). This rhythm of the river changing its course from left to right and right to left is an integral part of its pulsating flow. It is our interference of this

rhythm that causes the river to become aggressive and flood. The banks will then not receive their recharge from the river, and all life downstream will also suffer. Should any kind of adjustment have to be made to the course of a river, it is essential to know when to encourage a right hand bend, for to put a left hand one there would only disrupt the river's energy flow. Even on a long left or right hand bend, there is still an alternating left-hand right-hand motion, although the motion in the opposite direction to that of the bend may be very slight and of short duration.

This current crossover appears where the river is most shallow and where the slowing down of the flow allows suspended material to settle. So these fordable stretches become the major deposition zones for the river's suspended nutrients and minerals and where the river can transfer these to the river banks. Alternatively the bends are where the rocks and stones are ground down, the trace elements contained in them being taken up by the vortical flow for later nourishment. Viktor Schauberger used to say that this sediment actually helps to sustain the river in its wanderings towards the ocean; he called it 'the river's bread.' These vital nutrients will be absorbed into the groundwater table.

This fordable stretch is also the place where the energy nutrients created by the river are released into the environment, provided there is a positive temperature gradient in relation to the river bank. As noted above, Schauberger called it the 'energy cannon' (Fig. 11.5). It is the completion of the 'outbreath' part of the cycle. All the energies accumulated in the previous in-winding, longitudinal vortex have to be released before the water rotates in the opposite direction. By this means a river constantly renews its vitality and enriches the land through which it flows.

If the water is sufficiently cold, dense and dynamic, small particles of trace elements and minerals are released from these suspended stones as they grind together, and are partially or wholly dissolved, replacing those previously lost through transfer to the surroundings. In addition pure ionizing energy is released through the generation of the triboluminescence. A golden flash of light is produced when two crystalline stones of similar composition are struck against one another. As it takes place under water it cannot be related to normal combustion, electrical discharges or frictional heat, and must therefore be a process of cold oxidation not associated with the generation of heat.

HIDDEN NATURE

This is probably the origin of the fabled 'Gold of the Nibelungs,' the 'Rhinegold' that supposedly lay on the bottom of the Rhine in days of yore and which gleamed during the hours of darkness. This legend is also to be ascribed to the phenomenon of triboluminescence. About 200-250 years ago, the water of the Rhine was probably clear enough for people to observe what appeared to be the flashing of gold on the riverbed. The Rhine today, however, is a thick, turbid, grey-green muddy brew, its life force having been extinguished by modern mechanistic methods of river engineering.

## Conventional river engineering

Viktor Schauberger's most vigorous campaign was to try to persuade the Bonn government to restore the Rhine and the Danube to their natural courses. He was greatly disturbed by the way in which those mighty rivers' banks had been straightened, so that the water was not able to flow naturally. It was like constraining someone in a straightjacket. This had the effect of overheating the oxygen content, making it aggressive. The water becomes violent, prone to flooding and disease-promoting. Tree felling on the river banks has only exacerbated the problem.

Often the rivers have been regulated through trapezoid-shaped canals in the misplaced belief that the flow would be improved. In fact this almost lifeless body of water was unable to carry its sediment, which settled on the bottom, and the river has to be constantly dredged. Because the flow is uniform, no cooling longitudinal vortices can form and no energizing processes can take place.

The water becomes warmer, sluggish, insipid and murky. With its energies destroyed it becomes a stale and lifeless liquid. Instead of being a carrier, mediator, accumulator and transformer of life-energies, the river has become a corpse (Fig. 11.7).

## Hydroelectric power

Present methods of hydroelectric power generation destroy water in their own way. The present inappropriate design of dams we touched on earlier in this chapter. The water is thrust down cylindrical pipes under enormous pressure. Upon leaving these it is then hurled against steel turbine blades where it is smashed to

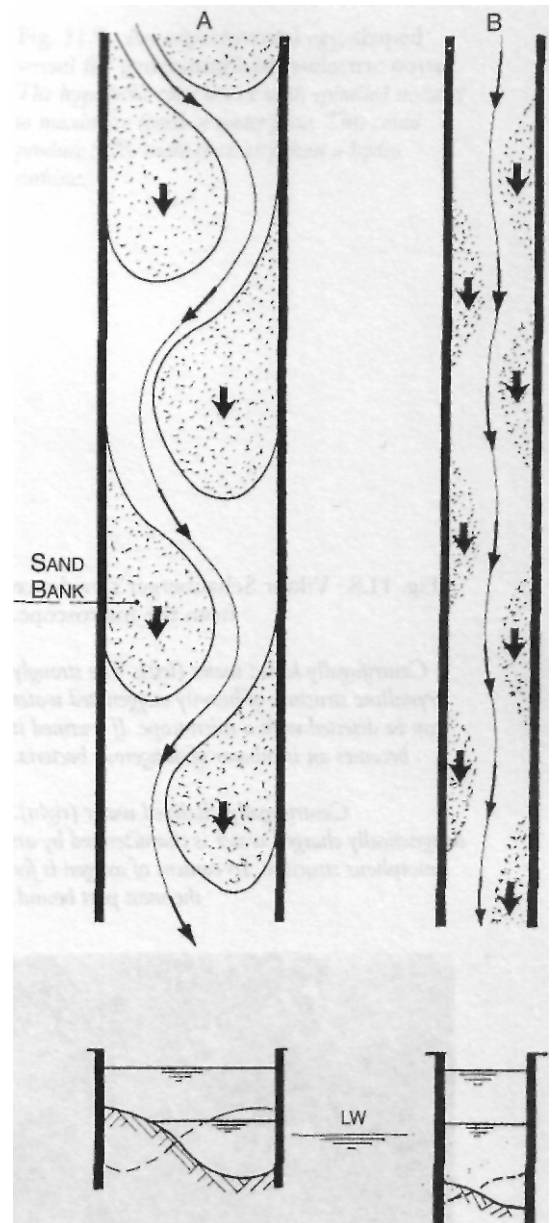


Fig. 11.7. Sand banks in conventional channels.

From a textbook of conventional river engineering. The river still tries to dance and play, but confined to a straightjacket, it silts up and will have to be dredged, to avoid flooding.

smithereens. The physical structure of the water is literally demolished and all the dissolved oxygen, and even some of the oxygen in the water molecule itself, is centrifuged out of the water.

Viktor Schauberger had photographs taken through a microscope (Fig. 11.8) that show the marked difference in the structure of water that has been subjected to centrifugence on the one hand and centripetence on the other. The fragmented appearance of the centrifugally moved water is unmistakable. The slicing action of the blades causes severe friction and heating which makes the oxygen highly aggressive and it attacks the bare metal, severely pitting the surface, often destroying the blades' efficiency.

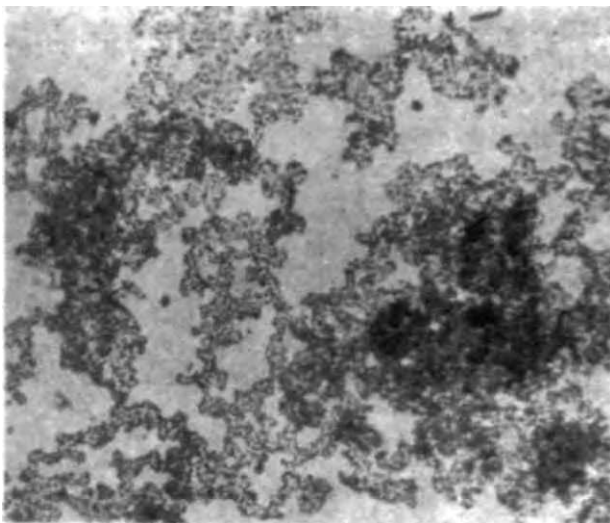
This fragmented and largely oxygen-deficient water, a virtual skeleton of healthy water when forcibly expelled into the river, has disastrous consequences for the fish and other aquatic life. Inevitably certain species of fish disappear once these power stations are commissioned, and other forms of life survive with difficulty.

The water is so depleted that it has to build itself up again completely before it can be of any benefit to the environment. So it seeks out new supplies of oxygen and other high quality substances wherever it can find them, including living things. With their particularly intimate contact with this 'ravenous' water, fish are especially prone to attack as it enters their very delicate gill systems and their body's tissues are attacked by oxygen-hungry carbonates. The soil bordering on the river is also leached of its

Fig. 11.8. Viktor Schauberger's evidence from the microscope.

Centrifugally killed water (left). The strongly crystalline structure of heavily oxygenated water can be detected with a microscope. If warmed it becomes an incubator of dangerous bacteria.

Centrifugally vitalized water (right). Magnetically charged water is characterized by an amorphous structure. Its content of oxygen is for the most part bound.





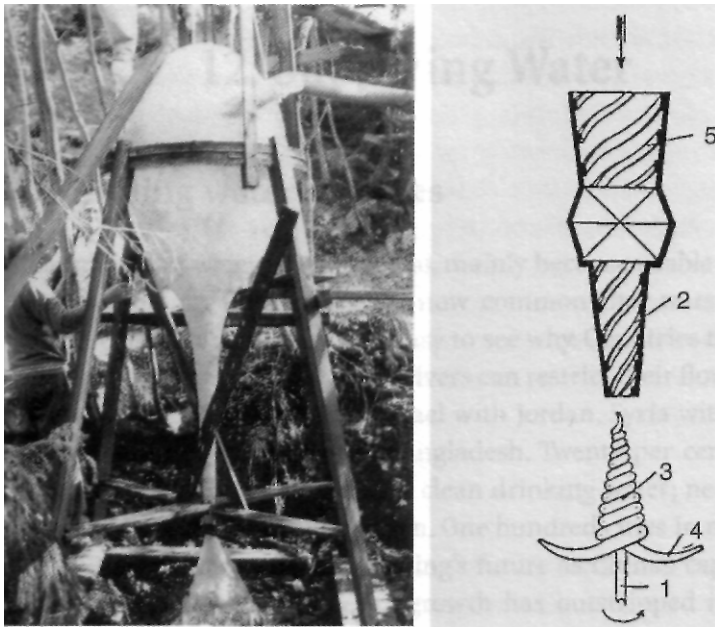


Fig. 11.9. An experimental egg-shaped vessel for generating hydro-electric power. The hyperbolic cone device with spiralled nozzles to maximize speed of water flow. This could produce 90% more electricity than a hydro turbine.

nutrients which the water hungrily consumes resulting in a large drop in soil fertility and productivity.

Viktor Schauberger showed how unnecessary is this extraordinarily destructive power-generating process. He devised a novel method in the early 1920s which can produce 90% more electricity from a given flow-volume without harm to the water. Using water from a nearby stream Viktor installed this device to light his forest warden's house, which was too remote to be connected to any other source of supply. The design shown in Fig. 11.9 is very simple, illustrating his belief that what is natural is silent, simple and cheap.

It operates by water being cooled, densified and energized as it passes through a rifled brass nozzle, in a vortical flow, thereby reducing both pressure and friction as the water is centripetally drawn away from the sides. The water is directed against a multiple-spiral, shell-like impeller attached to the shaft of a generator.<sup>5</sup>



## 12. Supplying Water

### Dwindling water supplies

The subject of water is very topical, mainly because usable water is in short supply. Predictions are now common that wars will be fought over access to water. It is easy to see why. Countries that control the headwaters of important rivers can restrict their flow downstream, like Turkey with Iraq, Israel with Jordan, Syria with Israel, Sudan with Egypt, India with Bangladesh. Twenty per cent of the world's population does not have clean drinking water; nearly half the world does not have sanitation. One hundred cities in northern China now ration water, and Beijing's future as China's capital has been under review because its growth has outstripped its water resources. Even those countries which have sufficient water treat it so badly that, when delivering it to homes, kill it with chlorine, fluorides and other chemicals, ostensibly to prevent disease; instead this depresses our immune systems and makes us more open to infection.

How has this come about? Water is in great abundance on this marvellous planet, but less than 0.5% is available as fresh water. The rest is salt water, inaccessible groundwater, or frozen in polar mountain ice. While the world's population is increasing by 85 million a year, cities are expanding at double that rate due to urbanization. Cities and industries consume the most water (industrial water consumption is to double by 2025).<sup>1</sup> Twenty-four countries, mainly in Africa, will not have enough water to meet 2025 projected needs.<sup>2</sup> And, if that is not critical, according to a recent UN report, world population could rise from 6.1 billion in 2000 to at least 8.2 billion by 2050.<sup>3</sup> Today, 1.2 billion people drink unclean water, and 2.5 billion lack proper toilets or sewerage systems.<sup>4</sup> And what will be the situation in ten years' time?

Globally, about 70% of water diverted from rivers or drawn from aquifers is used for irrigation. This is hugely wasteful; leaking pipes and channels, evaporation from reservoirs and from irrigation sprays means that about 60% of the water does not reach the plants' roots. China's greatest river, the Yellow River, has run dry and in several

years since 1985 has failed to reach the ocean.<sup>5</sup> The once mighty Nile, Ganges and Colorado Rivers barely reach the sea in dry seasons.<sup>6</sup> The introduction of industrial agriculture into India and Northern China has in those areas led to dangerous lowering of the water table.

The construction of large dams, whether for hydroelectric power or for irrigation does incalculable environmental damage, as well as annihilating viable human communities. Dams destroy ecosystems and sever the balancing of energy from one part of the landscape to another. Since 1970, when Egypt's Aswan High Dam came into operation, the number of commercially harvested fish species in the Nile dropped by two-thirds, and the Mediterranean sardine catch has fallen by 80%.<sup>7</sup>

## Water for profit

Traditional societies know how to manage their water, but increasingly the supplies of rural communities are being privatized by companies whose major priority is profit. In April 2000 the protesting citizens of Cochabamba in Bolivia suffered over 180 casualties at the hands of their police before their government revoked the right of International Waters of London to impose a 35% increase in water prices. The Bolivian government has now reconsidered its policy to privatize all public water supplies.

Vast new networks of supply and disposal pipes must be built in the cities if basic water needs are to be met. Governments, unwilling these days to invest in social infrastructure, are privatizing water utilities, and the results seldom benefit the consumer. A shortage in any essential commodity brings out the profiteers and extortionists. Pro-privatization propaganda reached a climax at the Water Forum meetings in The Hague in March 2000, but the abuses and inadequacies of commercial control have become apparent.

One study has shown that Swedish municipal water authorities delivered water at around a third of the cost, had operating costs of about half, and produced nearly three times higher return on capital than English private water companies of similar size.<sup>8</sup> However, since the economic downturn of 2001, several English private water companies have been experiencing financial difficulties. It makes complete nonsense that essential water supplies should be subject to the ups and down of the financial markets.

A great danger to our water comes from the globalization of sup-

ply. Multinational companies are unaccountable and self-serving with more interest in profits than in a sustainable environment. A group of water companies tried at the 2001 Water Forum conference to foist a new water order on the world, in effect to encourage water supply to be removed from public control. American companies are negotiating to build dams in India which would displace countless communities and destroy their environments. Three French companies already control more than 70% of the world's private market.<sup>9</sup> Increasing numbers of privatized water schemes are linked to ventures to extract more water through vast dams and reservoirs, with bulk water supply schemes that guarantee profits by requiring consumption regardless of need.

## Modern water treatments

### Chlorination

Because public water is not treated with the care required to keep water pulsating and alive, it degenerates, attracting pathogenic organisms. As a result, the authorities routinely treat it with chlorine to prevent the threat to the community of waterborne diseases. This powerful disinfectant removes all types of bacteria, beneficial and harmful alike, and in doing so, over a long period of time, destroys or seriously weakens many of the immune-enhancing micro-organisms in the body. It is a major contributor of lowered immune resistance in older people. Medical authorities say that the amount of chlorine is so small that it could not do this, but they fail to take into account that the chlorine accumulates in the fatty tissue of the body, so that the dosage is cumulative, nor that there is a homeopathic action that amplifies the effect on the body.

Those of us who live in cities and are forced year-in and year-out to drink sterilized water should seriously consider the fate of that 'organism' whose naturally-ordained ability to create life has been forcibly removed by chemical compounds. Sterilized and physically-destroyed water not only brings about physical decay, but also gives rise to mental deterioration and hence to the systematic degeneration of humanity and other life-forms.<sup>10</sup>

### Fluoridation

The issue of adding fluorosilicates (fluoride) routinely to drinking water is one of the worst outrages in public health policy. This is not



the naturally occurring calcium fluoride that is present in some drinking water, usually at low levels of about 0.1 ppm (parts per million). It is a by-product of a number of industrial processes, initially the iron, copper, aluminium and now the phosphate fertilizer industries, and contains also a number of heavy metals; altogether a potent toxic cocktail, the disposal of which would be costly by current environmental standards.<sup>11</sup>

The solution to this problem of industrial waste disposal was to arrange for their addition to public water supplies. In parts of the USA, Canada, Britain, Ireland, Australia, New Zealand, and a few non-English speaking countries, like Chile, this is permitted, usually at levels of about 1 ppm (or 1 mg fluoride per litre of water), but many other countries decided the risks were too high to implement the policy. The addition of fluoride as a policy is justified by the claim that it reduces dental cavities, especially in children. Independent research actually proves otherwise, and shows that the body accumulates levels of fluoride in the bones and certain organs, and there is evidence of increased risk of cancer, brain function impairment, kidney malfunction and premature ageing.<sup>12</sup> At higher dosages, fluorosilicates are an effective rat poison.

Unfortunately fluoride is also added to many processed foods, fruit juice, milk and, especially toothpaste. Fluoride is released into food cooked in Teflon-coated cookware, so the actual intake may be significant, even if you don't live in a fluoridated area. For reasons that are difficult to comprehend, but which are clearly political in nature, many dental and health authorities seem to support this mass medication of whole populations, and politicians seem happy to go along with it.

Mass fluoridation started in the USA in 1945, backed largely by the Mellon family, owners of ALCOA, the biggest aluminium manufacturer, and one of the biggest fluoride wartime polluters. Starting with Grand Rapids, Michigan it was introduced within two years to a hundred cities. Basically a dirty tricks campaign that labelled opposers as crackpots (and during the McCarthy era as left-wing subversives), it has never completed convincing tests, nor produced adequate evidence of its efficacy or safety. 'It was a political, not a scientific health issue' and, like the agenda of the more recent genetically modified foods campaign, became a major US export.<sup>13</sup>

The World Health Organization and the American Medical Association were persuaded to back the policy. The FDA (US Food and

Drug Administration) has backed off slightly from its 100% endorsement of the product, due to public exposure of the scam, but today 130 million Americans in 9,600 communities continue to drink fluoridated water.<sup>14</sup> Like the USA, about 50% of the Canadian population has fluoridated water.

Mass fluoridation came to Britain in the 1950s, and currently 10% of the population is exposed, mostly in the West Midlands and the North-East. The present UK government policy is to require all water companies to adopt fluoridation. In Australia, some of the fluoride laws are so Draconian that people may be prosecuted for speaking out against water fluoridation.<sup>15</sup>

Barry Groves concludes, 'Fluoridation is the longest, most expensive and most spectacularly unsuccessful marketing campaign ever to come out of the United States.'<sup>16</sup>

Viktor Schauberger was very concerned about industrial pollution of rivers and lakes, but the addition of poisons to our domestic water supply was not an issue of the 1930s. Indeed, he insisted that the way we transport and deliver water destroys the invigorating qualities of healthy water, and he pursued enlightened research on ways of maintaining water's energy. Viktor predicted that one day a bottle of good water would be more expensive than a bottle of wine, and commented on our treatment of public water supplies:

If we have any common sense remaining, we should refuse to continue to drink water prepared in this way. The alternative would be degeneration into cancer-prone, mentally and physically decrepit, physically and morally inferior individuals.<sup>17</sup>

## Transmuting water's memory

Most communities make genuine efforts to remove physical pollutants from public water supplies, but there are so many organic toxins produced by industrial agriculture, that one is wise to consider good filtration to reduce the dangers of these pollutants and of heavy metals that, sadly, are now more common. There are now generally available good and affordable plumbed-in filters that remove most of the physical contaminants.<sup>18</sup> However, what our water treatment policies must urgently take on board is that the physical removal of a pollutant is only part of making water safe.

Typically, in modern cities, public water supplies are recycled as many as twenty times. Even if the physical contaminants have been removed, their vibrational imprint is still carried in the water in its memory bank, no matter how many times it is recycled. Just as water can carry restorative energies, such as in homeopathy, so it can transmit negative or destructive imprints that can cause disharmony or disease in the body.

The purpose of some of the better vortex treatment systems is to recluster the water, in a manner that superimposed natural vibrations will erase the memory of the water's previous abuse. The vortex, being the transmuting instrument or enabling gateway between different qualities or levels of energy, allows the water to absorb the etheric or cosmic level of energy that surrounds us all.<sup>19</sup> Rather as allowing brilliant sunlight and fresh air to fill a musty room will quickly transmute the stale energy, so the more refined energy always prevails over the coarser. We would recommend a combination of an efficient plumbed-in filter with a vortex-type re-energizing system (see Resources, p. 276).

## Tubular water movement

We described earlier Viktor Schauberger's almost mystical experience of when he felt his own consciousness enter the stream and how the water consciousness seemed to tell him how it wanted to move. Great pioneers of science have told of similar experiences as a kind of initiation. For Viktor it opened a wider perception about water's behaviour in quite different situations. For example, how water wants to move in a closed system like a pipe is quite different from its movement in a river. His genius allowed him to make the quite remarkable connection between the behaviour of water in a pipe or tube, and the movement of sap in a tree or blood in the human body.

## Water main material

Archeological research has shown that in ancient times, from the Babylonians to the Greeks, there was a greater understanding of water and its qualities. In those times, water mains were constructed of high quality wood or of natural stone. In time, these natural materials became more scarce, and the Romans experimented with different metals. Preoccupied with oxidizing corrosion, unfortunately they

often used lead which brought its own problems of lead poisoning, particularly in the wine goblets where the vinegar in the wine dissolved the lead.

Before the expansion of cities during the Industrial Revolution, many water mains in Europe, and even in New York, were constructed of wood, which allowed the water to breathe and to interact with its environment. After the water mains in Vienna were extended to new suburbs with steel or iron pipes, internally coated with tar, as opposed to the traditional wooden tubes, Schauberger found that the incidence of cancer more than doubled between 1920 and 1931.<sup>20</sup>

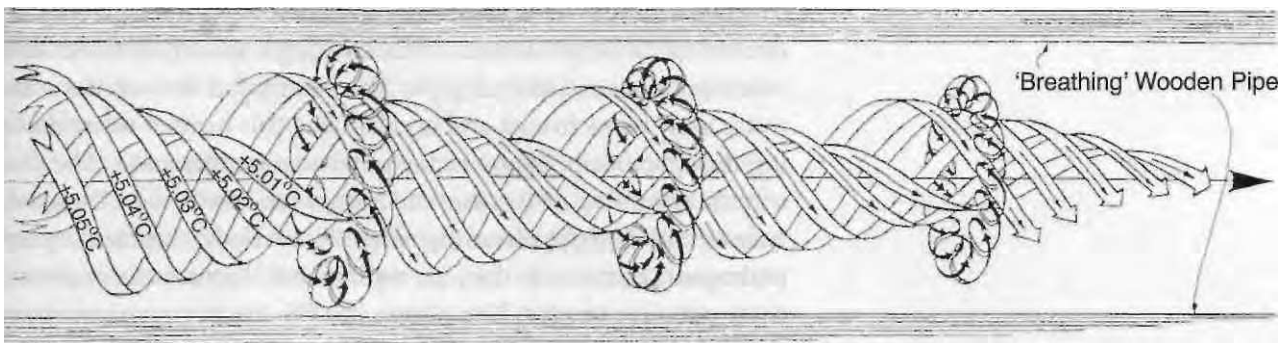
The laminar structure of water quickly disintegrates owing to the chaotic flow through a cylindrical pipe. Friction with the pipe walls heats up the water, decomposing the dissolved trace elements. As the surface of the iron pipes start to rust, oxygen is taken out of the water, and the rust deposits encourage disease-promoting bacteria. The accumulating rust in turn constricts the water flow, so that what is delivered is dead water, disinfected with chlorine.

#### The wooden water main

Schauberger knew that water can maintain its vitality and energy only if it is allowed to tumble about in a spiralling vortical manner. So in 1930 he set about designing a pipe that would actually encourage this movement. It was constructed of wooden staves, like a barrel, which allowed the moisture to seep through, transferring a cooling effect (as in sweating) to the water in the pipe. The spiralling movement was created by a series of guide vanes, which act like rifling in a gun barrel. These were made of silver plated copper to

Fig. 12.1. The double-spiral longitudinal vortex.

This is a longitudinal vortex showing the development of toroidal counter-vortices. These occur due to interaction with the porous pipe walls and have an effect similar to ball-bearings, enhancing the forward movement. Their interior rotation follows the direction of rotation and flow of the central vortex. These toroidal vortices transfer oxygen, bacteria and other impurities to the pipe walls, where the concentration of oxygen destroys the inferior, pathogenic bacteria.



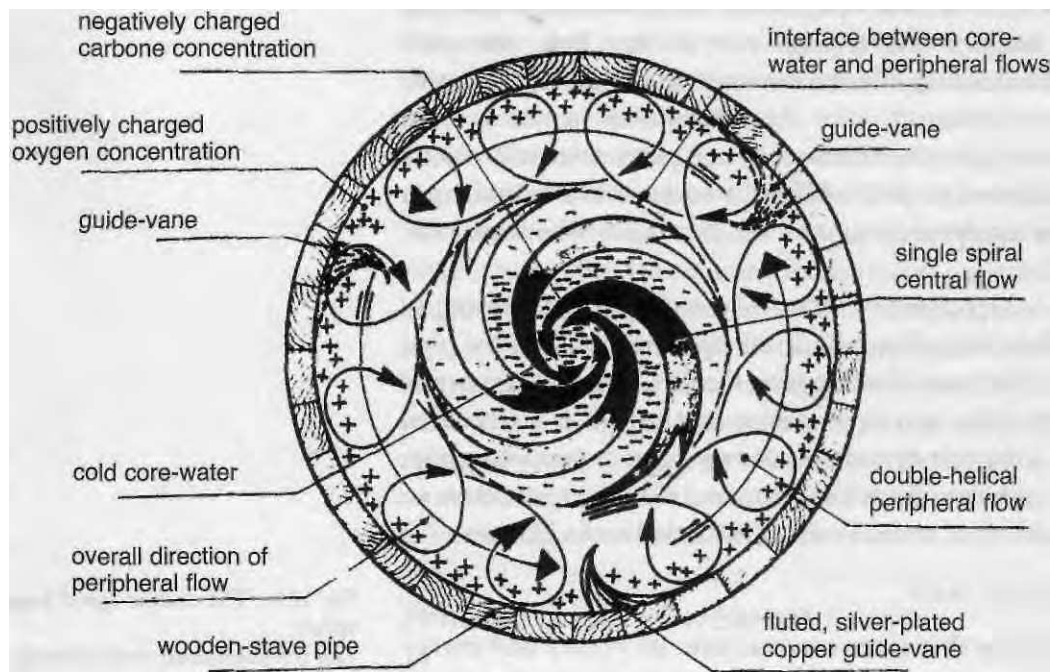


Fig. 12.2. Flow dynamics of the double spiral pipe (cross section).

enhance the subtle energies<sup>21</sup> and fluted so as to direct movement towards the centre, thus reducing the heating effects of friction.

Figs. 12.1 and 12.2 illustrate how this configuration sets up a double-spiral longitudinal vortex, creating a waterflow faster than a conventional cylindrical pipe. The centripetal flow of the main water body helps to cool and accelerate it, this heavier water drawing the specifically lighter outer water along in its wake. The centripetal spiralling of the toroidal 'doughnuts' created by the guide vanes extract oxygen from the main water body, transferring any pathogenic bacteria to the pipe walls where they are eliminated by the aggressive oxygen. The higher quality micro-organisms however, survive, because they require higher levels of oxygen.

HIDDEN NATURE



It is a brilliant design that imitates the natural pulsating flow of water in a natural vessel and which delivers water that purifies itself and cools through its motion, eliminating the need for any sterilizing or purifying additives. Ideally, these wooden water mains should be embedded in sand, allowed them to breathe, and protected from light and heat. In such conditions they should outlast a steel pipe.

## The Stuttgart tests

As the scientific establishment had never taken seriously his ideas on natural water movement, Viktor Schauberger in later life decided to have them subjected to rigorous tests by an independent authority. In 1952 he asked the Stuttgart Technical University to set up the experiments at his own expense. He approached Professor Franz Popel, director of the Institute of Hygiene who, knowing Schauberger's infamous reputation, at first refused, saying it would be a waste of his time.

The German Government had been irritated by Viktor's railing about its management of the River Rhine. So, hearing about Schauberger's proposal, it was happy to offer to cover half the costs, thinking that any genuine tests were bound to discredit him. As a result of this, Professor Popel changed his mind and agreed to test the various rifled and helical pipes that Viktor supplied.

The object of the tests was to compare how water moves through eight different kinds of pipe, the velocity of the water flow being affected by friction varying according to the form of the pipe. The configurations that produced the most friction were the straight pipes made of glass or of copper. Introducing a sinuosity to the pipe reduced the friction, while Viktor's special 'spiral helicoid' copper pipe directed the water flow in an involuting flow movement away from the walls, giving the greatest reduction in friction, to zero or perhaps even below (negative friction or acceleration) at specific velocities.<sup>22</sup>

Because of expectations of his peers, Popel's report played down the significance of the experiment, which in fact in these circumstances disproved the relevance of the Second Law of Thermodynamics, which states that energy in any closed systems must degenerate or run down. The implication of this was that a system can in certain circumstances generate energy spontaneously, that

once the initial impetus has been received, no further energy input is required. In other words, energy is not a constant. In this case it was increased through the emergence of fifth or sixth dimensional dynagens (see Chapter 2) created by what Schauberger called 'original' or 'cosmic' movement. Popel did, however, admit that in Schauberger's special pipe, friction at two specific velocities appeared to reduce to zero.

## The circulation of blood

It is a common experience for those who use the ancient practice of watching the breath when they meditate, of the strange sensation of 'being breathed;' that the process seems to be part of a 'greater breathing.' Viktor Schauberger would often insist in a similar vein, that a bird 'is flown and a fish 'is swum.' On many occasions he said that the heart is not a pump, that it 'is pumped.' He saw the heart, rather, as a regulator or of blood flow. The spurts of blood that the heart produces during contraction are more like the automatic reaction to having been full, like the outbreath of the lungs.

The Stuttgart experiment had established that when the water flow was in resonance with the configuration of the pipe, there was no friction. Similarly the blood being in resonance with the arteries and capillaries greatly facilitates flow. In addition the blood vessels have a natural pulsating, peristaltic action. About 1927, Professor Kurt Bergel of Berlin University recorded this automatic pulsation a few days after incubation in small warm blood vessels around the egg sac of a bird's egg, although no heart had yet been formed. Professor Bergel also rejected the popular theory of the heart as a pump, insisting that this function was carried out by 'the millions of highly active capillaries permeating the body,' and that 'health and disease are primarily dependent on the faultless or disturbed activity of the capillaries.'<sup>23</sup>

It appears that the pulsation of the capillaries initiate the circulation of the blood, augmented by the configuration of the blood vessels themselves.<sup>24</sup> The specifications for these would have been created with the original energy blueprint for hot-blooded creatures in general, and the human being in particular (see Chapter 2). Included in these specifications was even a provision that the viscosity of the blood would be reduced in the finer blood vessels, so

that its ability to flow freely would not be compromised! The same is found with sap at the tree's extremities.

A parallel may also be drawn between the veins and arteries twisting sinuously through the body, bringing nutrients to the tissues and organs and the streams and rivers, pulsating with eddies and spirals, winding their way through the countryside, nourishing the surrounding areas.

Temperature gradients also can influence the efficient circulation of blood. A strong positive gradient (where temperature decreases with movement in a given direction) between the inner core of the body and its outer extremities will stimulate the outward flow. This explains the invigoration of a cold shower. Conversely, a prolonged soak in a hot bath slows down the circulation, producing lethargy. The second is the result of the difference in the physico-chemical composition and therefore the energetic characteristics of arterial and venal blood.

Pulsation is assisted by the different electromagnetic charges carried by two principal types of blood. The positively-charged oxygen in the outward flowing arterial blood is gradually absorbed by muscles and skin, creating a partial vacuum. The negatively-charged, carbene-rich venal blood on the other hand returning from the extremities is ready to reabsorb oxygen from the lungs. The contraction of the heart muscle is a balancing response to opposite charges carried by the two types of blood in the relatively large heart chambers. It might also be said that the heart's pulsation is caused by our breathing in positively charged oxygen, (we then expel the negatively charged CO<sub>2</sub> and water), rather than the conventional belief that we breathe because the heart 'pumps.' The heart's real function is to stimulate pulsation in the blood flow.

The situation of the unborn child is different, for there is no temperature difference between the inner core and the outer extremities. It is likely therefore in the case of the foetus that the heart acts like a pump until it is born. After birth the heart would then assume its normal role as pulsator and balancer.

Callum Coats quotes research that calculates the total length of blood vessels in the average human adult to be about 96,500 km (60,000 miles)! On the basis of conventional hydraulic calculation it is inconceivable that the actual power output of the heart, about 1.5 watts, would be sufficient for this huge task.<sup>25</sup> Yet it does so.

## 12. SUPPLYING WATER

Moreover, Walter Schauberger calculated that the annual output of the heart would suffice to raise a weight of about 40 tonnes (44 tons) to a height of 1m (3.28ft).

The Stuttgart experiments showed that a specific configuration is required for frictionless flow to occur. Schauberger maintained that energy creates the vessel most conducive to its desired form of movement in a given situation; and that energy will always try to move frictionlessly in healthy, animate, organic systems. Seen in this light, the pulsating, almost frictionless flow of blood over these enormous distances becomes more comprehensible. It is important that further investigations should be pursued into the lines of research that Viktor Schauberger pioneered.

## Water storage

With good water becoming increasingly more scarce, it is important to understand how to preserve its quality. Water's enemy is excess heat and light. Water contains oxygen, a substance that is essential for the processes of growth and decay. Below a temperature of 9°C (48°F), oxygen is used for growth, above that, to promote decomposition. As the temperature rises above 10°C (50°F), the oxygen becomes increasingly more aggressive, promoting pathogenic bacteria which can give us disease when we drink the water containing them.

A tank or cistern that is above ground needs to be well insulated, and painted white to reflect the Sun's heat. If it is mostly below ground, the walls will not require insulation, but the top must be painted white. However, Viktor Schauberger urged us to observe the shapes that Nature uses to propagate and maintain life. Nature abhors squares (cubes), rectangles (water tanks) and circles (cylinders). He said that we should not be surprised that our dependence on these unnatural shapes for storage results in the deterioration of our water. This is probably impractical for larger containers, but we should try a more natural shape for smaller containers.

Because it is a living organism, water needs to be in constant movement to maintain its health. The only container that allows this is the egg-shape. The material of containment is very important, because water needs to keep cool; the best materials are natural stone, wood or terracotta. The ancient Greeks understood this, and

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# Preface

This report, originally published in 1997 in Swedish, is here available in English translation for the first time.

During the years since this report was first published we have met interest in and gained renewed understanding into processes and perspectives that could be characterized as Viktor Schauberger's.

As the report now exists in its second edition, we have kept the text much as it was originally written. Some passages that were unclear we have tried to clarify and elucidate, and some errors and typos have been corrected, but mainly the text stands as it was originally written.

We are happy that the renewed activity at the Institute of Ecological Technology has made it possible to publish the report at the institute.

A special thanks to Olof Alexandersson for his kind assistance and for having paved the way for the scientific study of the ideas and inventions of Viktor Schauberger.

We would also like to give a special thanks to the Department of Limnology at Lund University who furnished us with (some of their old) equipment for this project.

Thank you all of you who have supported us over the years, and who have made this project possible.

Malmö, May 2002

Lars Johansson  
Curt Hallberg  
Morten Ovesen

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## Summary

In this report we have tried to establish a language assisting the understanding of the ideas of the Austrian naturalist Viktor Schauberger, with the aid of concepts from modern research into chaotic and self-organizing systems.

We have replicated some of the experiments Schauberger and Pöpel performed in Stuttgart in 1952, relating to vortex generation and particle separation.

From this point of view we have tried to create an overview of existing research in the area. We have more specifically studied the principles governing particle separation and oxygenation, and made a sketch of how these views can be used for water engineering more aligned to nature.

The focus of the research has been on modelling. With the aid of concepts like self-organization, free and forced vortex flow, chaotic pulsation, mathematical bifurcations and minimal surfaces, and with flow images like “handkerchief dynamics” and “toroidal vortex flow” we have tried to sketch a natural sciences perspective that comes close to Schauberger’s.

Several technological applications based on this perspective exists, e.g. within water treatment and watercourse restoration.

An important application is oxygenation of water, in e.g. fish ponds, bathing facilities, and biological ponds at sewage plants. By letting a vortex funnel with air be pulled down to a specially designed suction pump, air will be injected in the form of very fine bubbles. This technology could be used at sewage plants in stead of the present flotation method - where air is pressed into the water at the bottom at high pressure, which normally consumes a lot of energy. With the same principle at a somewhat greater scale it could be possible to restore the level of oxygen in waterways, lakes or minor bays at sea.

The possibilities exists for treating industrial process water, e.g. by separating particles and oxygenate the water to create an aerobic bacterial fauna in the water, which can then be reused or recycled. This would have applications in laundry plants, in the food industry, and in paper-mill industry, where water consumption is high. Another possible application could be to “trap” oil belts floating on the sea into a vortex funnel where the oil then could be separated.

Further research could look at upscaled versions of watercourse restoration or at the effects on (and possible separation of) ions in water, e.g. for drinking water. Here applications interesting for the third world can be imagined.



# Chapter 1

## Introduction

This report is an attempt to understand and learn from the ideas and inventions of the Austrian forester Viktor Schaubberger. Viktor Schaubberger already in the 1920s warned about environmental crisis, at a time at which it was not, as today, something recognized. Throughout his lifetime he encountered resistance and ridicule, and his perspective may still today be labelled as unconventional and unorthodox, although much of what he wrote about our handling of waters and forests today is more relevant than ever. As he wasn't an academic, but was more of a natural philosopher, he had trouble to communicate his ideas with contemporary scientists. In this report, we'll try to show how modern research in chaos and self-organizing systems give us a possibility to shed some new light on Viktor Schaubberger, and perhaps establish a deeper understanding of the phenomena he described.



Figure 1.1: Viktor Schaubberger.

## 1.1 Viktor Schauberger

We will call our perspective self-organizing flow, so called since the technology described exploits the intrinsic order spontaneously created by a system during the right conditions.

Such a view was advanced in the 1920s by the Austrian naturalist Viktor Schauberger [1]. Schauberger was a forester and timber-floating expert. He was no academic, but he had a long tradition of studies of nature to rely on. He also had rich opportunities to study the processes of nature in untouched areas, when it came to the handling of watercourses and the quality of water. His approach was that man should study nature and learn from it, rather than trying to correct it — a view that was rather controversial at his time<sup>1</sup>. He noted that mankind had a developed technology for exploitation of water, but still knew very little of the processes of natural waters, and the laws for their behaviour in an untouched state.

Schauberger gave the following example: In a mountain stream he observed a trout which apparently stood still in the midst of rapidly streaming water. The trout merely manoeuvred slightly, looking rather free from effort. When it got alerted it fled against the stream — not with it, which at first sight would have seemed to be more natural.

On some occasions a cauldron of warm water was poured into the stream, quite a long distance upstream from the fish, for a moment making the river water slightly warmer. As this water reached the fish, it could no longer sustain its position in the stream, but was swept away with the flowing water, not returning until later. From this experiment Schauberger concluded that temperature differences are of great importance in natural river systems. He even tried to copy the effect of the natural movements of the trout in a kind of turbine which he called trout turbine.

By studying the gills of the fish [1], Schauberger found what looked like guide vanes. These, he theorized, would guide streaming water in a vortex motion backwards. By creating a rotating flow, a pressure increase would result behind the fish, and a corresponding pressure decrease in front of it, which would help it to keep its place in the stream<sup>2</sup>.

Schauberger constructed a series of extraordinary log flumes that went against the conventional wisdom of timber floating at his time. The flumes didn't take the straightest path between two points, but followed the meandering of valleys and streams, see Figure 1.2. In these flumes, guide vanes were mounted in the curves, making water twist in a spiral along its axis. This fact, together with a meticulous regulation of water temperature along the flumes and waterways used, made it possible to float timber under what was traditionally regarded as impossible conditions, i.e. with significantly less water needed than traditionally, over long distances and with a transport rate which significantly exceeded what was considered normal. It was even reported that timber more heavy than water could be floated<sup>3</sup> — timber that would sink to the bottom under normal conditions. Remnants of these flumes and floating arrangements still exist today, and can be observed at different locations in Austria.

---

<sup>1</sup>This was at a time when central European forests were cut down at large scale and, as a consequence, mountain streams were clad in concrete in order to limit the severe erosion by floods.

<sup>2</sup>E.g. a pulsating jet of toroidal vortexes could develop, aiding the fish in thrusting against the stream [19]. Schauberger also held the view that small amounts of trace materials, such as copper, were significant in these processes.

<sup>3</sup>Winter hewn beech and larch.





Figure 1.2: One of Schauburger’s log flumes. Note the egg-formed section, and how the flume meanders like a stream. The Krampen-Neuberg flume in Austria, 1930s.

## 1.2 Knossos water supply

It is interesting that a water supply technology that displays some similar characteristics can be found on Crete, at the remnants of the ancient Minoan culture.

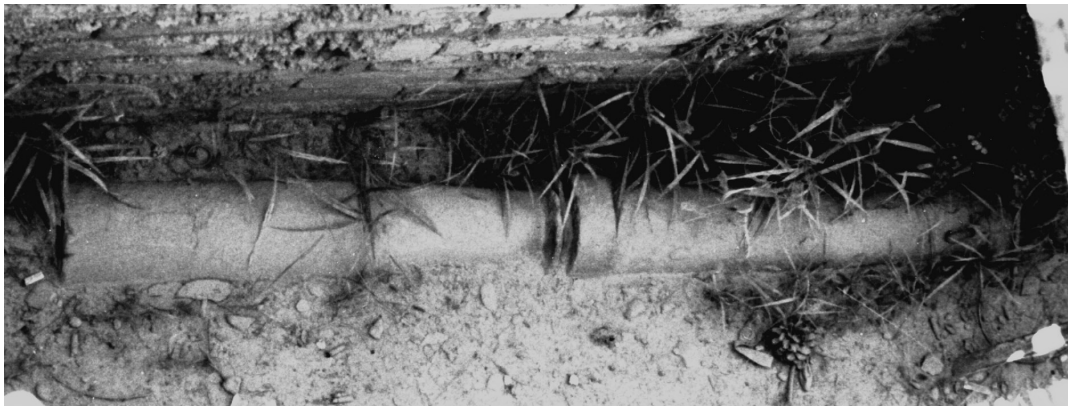


Figure 1.3: Some of the conical water pipes at Knossos. From the western part of the palace, close to the grain silos.

Early in the 20th century, Arthur Evans discovered and restored the palace of Knossos, situated at Kefala hill at the centre of Crete. The oldest parts stem from around 2100-2000 BC. On the walls vortexes and spiralling patterns abound — one wall drawing e.g. shows a Kármán vortex street — displaying that swirling water inspired the inhabitants of the place [11]. Water certainly was central in Minoan mythology — and treated as something sacred.

The water supply system is especially interesting. Conical pipes made of terra-cotta, where the narrow opening of each pipe section sticks well into the wide opening of the

next section were used, see Figure 1.3. Apart from making it easy to lay out the pipes in a curved fashion, the tapered shape of each section would give the water a shooting motion<sup>4</sup>, which would have assisted in preventing the accumulation of sediments. As noted by Evans [11], this would make them more advanced than nearly all modern systems of earthenware pipes, which have parallel sides. One stretch of pipes even showed an upward slope, indicating that Minoan engineers were well aware of the fact that water finds its own level. In some channels for water, braking vanes, to brake the water at the outer curves can be seen [2].

### 1.3 The Stuttgart experiments

This report is based on the experiments made by Viktor Schauburger and Prof. Franz Pöpel at the Institute of Technology in Stuttgart in 1952 [31]. One of the objectives of these experiments was to investigate the possibility of using different kinds of pipes with rotating water, in order to separate the water phase from a suspension of hydrophobic material.

The underlying idea was to use a vessel connected to a straight pipe from below. Water was injected tangentially and was allowed to swirl down into the pipe. A vortex would appear, and particles in the swirling flow would accumulate at the centre of the vortex, where the pressure was the least. With suitably designed pipes it was then possible to separate the hydrophobic material.

The importance of the design of the inlet vessel was also studied. By using a rectangular and a round vessel, two rather different cases could be studied. Not only straight pipes were used, but also conical and spiralling pipes were used. Pipes made of different materials, such as glass and copper, were studied as well. The experiments were extended into investigating the frictional losses of different pipes and materials.

The results were rather astonishing. Schauburger and Pöpel observed that the frictional resistance decreased the more conical and spiralling the pipes were made. Pipes made of copper had a lower flow resistance than pipes made of glass. The spiralling copper pipe produced an undulating friction curve as the flow was increased. At some flows a negative friction was observed, as if water seemed to lose contact with the walls and fall freely through the pipe. How to interpret this remains to be seen.

An underlying principle of the Stuttgart experiments is the rotation of water around its own axis, while it is flowing along a spiralling path with decreasing radius. The rotational velocity increases towards the centre where a sub-pressure exists.

Let us study a “bath tub vortex” to illustrate this. With a slow enough flow, water flows more or less straight down into the pipe. But at a critical flow a transition takes place, a bifurcation, and water starts to swirl in a vortex.

In order to make water organize itself into this kind of flow, we only have to create the right conditions, which in turn will generate the spontaneous emergence of a subpressure axis. This could be arranged by using a suitable geometry of the vessels, or by introducing different kinds of guide vanes, pressure sinks etc. (More generally, we have to look at the system and its interaction with its surroundings as a whole.) The system then is in a state of dynamic equilibrium, where it is always changing but where its structure is yet stable.

---

<sup>4</sup>By giving the peripheral water a vaulting toroidal flow.

## 1.4 A new perspective

This is a perspective that is very similar to that of Viktor Schaubberger's way of reasoning. He early observed that untouched watercourses had a kind of structural stability. From those observations he suggested methods for river regulation — based on the perspective of giving water impulses for self-organization to take place. By using suitable guide vanes and by taking into account the effect of the surrounding vegetation on water flow and temperature, he could make a watercourse self-organize into a stable river bed.

This way of regulating rivers and watercourses differs from the traditional ways, which tries to steer the flow and which disregards the 'eco-system' that the flowing water and its interaction with the river bed and vegetation makes up — with floods and bank erosion as the natural result. Schaubberger e.g. noted that the sediment transport capacity of the flow affected sand and bank development, which affected vegetation, which in turn affected the flow image of the water, through among other things the vegetation's cooling effect. The system bites itself in the tail, as it were.

A problem has been to interpret the language of Schaubberger, as it was more that of a naturalist than of a hydrologist. He more looked at the wholeness of the system, than to its detailed composition, and focused on its flow image, without knowing or modelling the underlying mechanisms.

Such a perspective does not look for as detailed a model as possible, but for the simplest model that has the same kind of fundamental properties as the system. It is a perspective that is close to that of modern chaos science. It has shown that disparate and seemingly complex behaviours often can be captured by (ridiculously) simple models<sup>5</sup>. This is due to the fact that dynamical behaviours at e.g. phase transitions are universal, and appears in a wide range of systems [14, 43].

This is the perspective we will bring with us, as we in this report reinterpret and re-examine parts of the Stuttgart experiments and some of the possible applications. We will replicate some of these experiments, and from this try to evolve useful models, which can help to bridge the perspective of Viktor Schaubberger with that of the modern natural sciences. This leads naturally to some of the main applications — water treatment and restoration of watercourses. We will take a closer look at these in this report.

---

<sup>5</sup>Consider by contrast the complexity of a traditional approach at modelling a highly non-linear system such as free surface flow with an air funnel.



## Chapter 2

# The Stuttgart experiments

In this chapter we will study the experiments performed by Schauburger and Pöpel at the Institute of Technology in Stuttgart in 1952 [31]. The purpose of these experiments were to investigate vortex flow in pipes. A lot of the experiments were devised to study the development of friction, especially in twisted, spiralling pipes. These experiments have been replicated by Kullberg [17], with positive results. In order to get a more thorough understanding of the phenomena and flow images present, we replicated those of the experiments that were relevant for separation technology: the study of vortex generation and particle concentration.

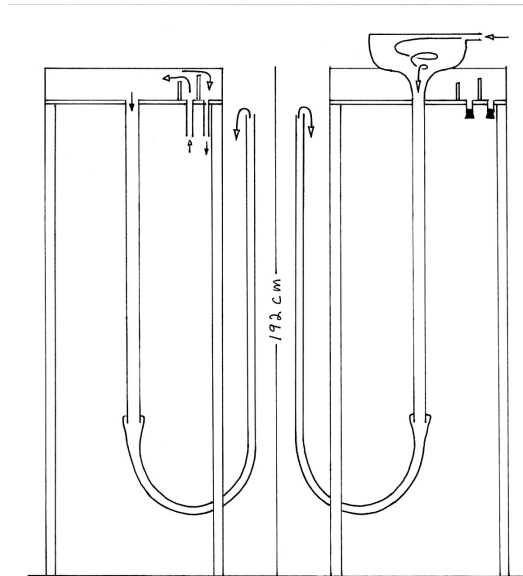


Figure 2.1: Schematic drawing of the experimental setups. Rectangular and trumpet shaped vessels respectively.

### 2.1 Experiments with a rectangular vessel

At the first experiment a rectangular vessel was used, where water slowly would well forth across an edge, see Figure 2.1 and 2.2, in order not to stimulate vortex formation. All

vortex generation thus was self-organizing (see the chapter on modelling).

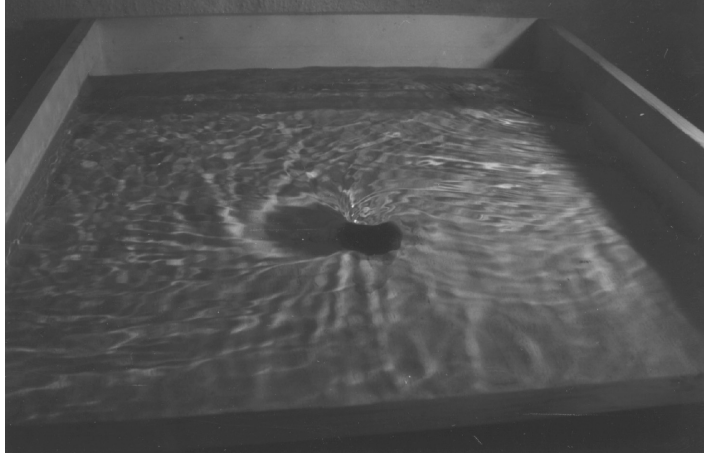


Figure 2.2: The rectangular vessel.

The flow was kept reasonably slow, 0.2–0.4 l/s. A weak vortex generation could be observed. The flow would organize as a spiralling space curve along the pipe. A thread that was hanging from the inlet was sucked into the pressure minimum, and formed a curve with increasing wavelength and decreasing amplitude along the tube, see Figure 2.3. The air bubbles that appeared in the tube would behave similarly. Kullberg observed in his experiments that the isobars for the static pressure across sections of the tube formed egg-shaped curves.

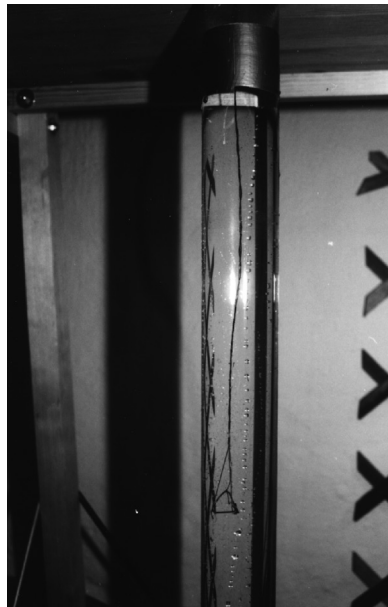


Figure 2.3: The spiralling space curve — here visualized with the aid of a thread and bubbles of air.



## 2.2 Experiments with a trumpet shaped vessel

The rectangular vessel was replaced by a trumpet shaped vessel with tangential inlets, see Figure 2.4. This of course stimulated vortex generation. The shape of the vessel and the arrangement of water injection were essential for this. The water flow was the same as in the previous experiment, 0.2–0.4 l/s.



Figure 2.4: The trumpet shaped vessel. Here the strong vortex generation can be seen.

A stronger vortex generation could be observed. Particles (coffee), that were spread on the surface or injected in the form of a suspension, were sucked towards the centre just as the thread. This leads to the question if it would be possible to use the technology to separate or concentrate suspended materials.



Figure 2.5: The experimental set-up, as seen from the side. In the middle of the pipe a string of coffee-particles can be glimpsed.

We will in the following try to visualize what is going on in the experiments, and see how this can be related to Schauburger's view of water.



## Chapter 3

# Modelling Tools

In this chapter we will try to define some theoretical tools and models that can be useful for addressing problems with self-organizing flow, or more generally, for focusing on the dynamics of flowing systems rather than on their composition. In this respect, our point of view will be closer to that of chaos and complexity research than to traditional fluid dynamics. A common feature of both chaos and complexity research is to focus on the behaviour of a system and on patterns that appear, rather than the detailed composition of the system [14, 43]. This view is also very close to Schaubberger’s own, whose language was more that of a natural philosopher than of a fluid engineer.

We will begin rather close to traditional theory, by investigating the forces acting on a suspended particle. This is of course relevant for separation. Then we will study some general principles of self-organization, and especially vortex flow patterns, which will play an important role later on. In the section on flow modelling we will discuss how flow can be modelled without knowing much of the mechanisms involved, with bifurcations and chaotic dynamics being treated more superficially.

As examples of flowing systems we’ll study two systems — a Stuttgart experiment resembling set-up, “the egg-tube”, and a barrel with swirling water at the centre, “the barrel”, see Figure 3.1.

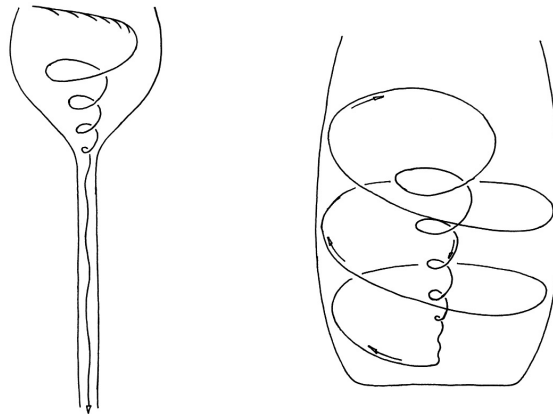


Figure 3.1: Two geometries, the egg-tube and the barrel.

In the egg-tube a strong vortex flow is induced by a series of tangential inlets. The swirling

water then continues down the pipe and gradually disappears out of the system — the principle behind the Stuttgart experiments.

In the barrel a swirling flow is created by sucking down water at the centre and diverting it towards the sides at the bottom of the vessel — the principle behind a vortex agitating apparatus like the Aquagro, see Figure 4.2.

### 3.1 The particle perspective

Let us study a particle in a medium, e.g. a coffee particle in water. What forces are acting on the particle? We can discern 4 different kinds of forces.

- **Inertia** tries to keep the particles (and water) in a straight course. In order to move a fluid element along a circular curve, we thus have to apply a centripetal force on the element. (The same of course applies for a particle immersed in a fluid.) This force amounts to:

$$F_{centripetal} = \frac{mv_{\theta_p}^2}{r}$$

Here  $m$  is the mass of the particle,  $v_{\theta_p}$  its tangential velocity, and  $r$  the radius of its rotation. (If the co-ordinate system rotates with the particle, it is “at rest” with respect to the tangential direction, but instead it experiences a fictitious force, the centrifugal force, due to the curved rotating co-ordinate system.)

- **“Lift force”**. Pressure differences on opposite sides of the particle create a resulting force in the direction of the pressure gradient (of the static pressure). In a rotating flow this is (locally):

$$F_{\frac{\partial P}{\partial r}} = \frac{\rho_v v_{\theta_v}^2}{r} V_p$$

Here  $\rho_v$  is the density of the fluid,  $v_{\theta_v}$  the tangential velocity of the fluid,  $r$  the radius of rotation, and  $V_p$  the volume of the particle.

- **Viscous drag forces**. If the water is moving with respect to the particle, the particle will be subjected to a viscous force, trying to cancel the velocity difference between the particle and the fluid. For small velocities the force is proportional to the velocity difference. (The fluid drags the particle along with itself, alternatively tries to reduce to relative motion of the particle, depending on which perspective is used.)
- **The Magnus effect**, which causes a ball to screw its way through the air, is acting on rotating particles and is often difficult to model. It is in general directed towards the centre when a particle is moving from regions with lower velocity towards regions with higher velocity, and thus is lagging behind the fluid, e.g. a particle that is caught in a free vortex. The influence on the particle is greater the greater the particle is.

A traditional approach is to study force equilibrium for the first three kinds of forces. After some calculation, one arrives with Stoke’s law for the velocity of the particle (with respect to the fluid):

$$\Delta v_r = \frac{v_\theta^2 D^2 (\rho_p - \rho_v)}{18\mu r} \hat{\mathbf{r}}$$

Here  $\Delta v_r$  is the relative velocity of the particle (with respect to the fluid) in the radial direction,  $v_\theta$  the tangential velocity of the fluid,  $D$  the diameter of the particle,  $\rho_p$  and  $\rho_v$  the densities of the particle and the fluid respectively;  $r$  is the distance to the centre of the vortex,  $\hat{\mathbf{r}}$  the unit vector in the radial direction and  $\mu$  the kinematic viscosity of the fluid.

The above formula involves some approximations, e.g. that the pressure gradient is reasonably linear across distances such as a particle diameter, and that the particle doesn't affect the flow pattern to any great extent, i.e. small particles in dilute flows. Also, the Magnus effect is ignored. For large particles these approximations aren't necessarily valid close to the centre of the vortex, where e.g. the Magnus effect will make itself manifest.

Also, it is assumed that the particle moves with the same velocity as the flow, in the tangential direction. But what happens if the particle is being retarded with respect to the velocity of the water?

In order to keep a particle in circular motion at a constant radius, we have to apply a centripetal force,

$$F_{centripetal} = \frac{mv_{\theta_p}^2}{r} = \frac{\rho_p v_{\theta_p}^2}{r} V_p$$

where we have introduced  $\rho_p$  as the density of the particle, and  $V_p$  as its volume.

Since the fluid is rotating, a pressure gradient appears in the radial direction, giving rise to a lift force, which tries to push the particle towards the centre. It is, from above,

$$F_{\frac{\partial P}{\partial r}} = \frac{\rho_v v_{\theta_v}^2}{r} V_p$$

In order to get a particle to move towards the centre we thus have to have:

$$F_{\frac{\partial P}{\partial r}} - F_{centripetal} > 0$$

whence,

$$\frac{V_p}{r} (\rho_v v_{\theta_v}^2 - \rho_p v_{\theta_p}^2) > 0$$

hence,

$$(\rho_v v_{\theta_v}^2 - \rho_p v_{\theta_p}^2) > 0$$

If the particle has the same velocity as the fluid we get  $(\rho_v - \rho_p)v_{\theta_v}^2 > 0$ , i.e. only particles that are lighter than the fluid will move towards the centre. If, however, the particle in some way is retarded with respect to the fluid (in the tangential direction), the expression can be  $> 0$  despite the fact that  $\rho_v - \rho_p < 0$ , i.e. also particles that are heavier than the fluid can be made moving towards the centre.

An example of this is if beads (or tea leaves) rest on the bottom of a barrel (or cup) with a rotating flow. As long as they are retarded enough by the friction against the bottom, they will be pushed towards the centre (the axis of rotation) and accumulate there.

### 3.2 The vessel perspective — a self-organizing perspective

Let us contemplate the water that is swirling in the funnel-like vessel. It then becomes obvious that there are at least 2 distinct ways of generating a vortex flow:

- **External forcing** — i.e. the fluid is accelerated from the rim, through the tangential injection of water that strikes into the bulk of water.
- **Inner self-organization** — by the creation of a subpressure from below, the fluid will organize itself into a vortex, since conditions for such a self-organization then appears.

What is actually meant by self-organization? The key point is that we do not have to try to steer water into a specific course, e.g. through mechanical mixing, or through a specially arranged geometry that is diverting the flow.

What we have to do is to create the right conditions, then the water flow will organize itself. We can e.g. observe water flowing out of a bottle. At low flows the water behaves nicely and flows straight out, but at a critical flow the system undergoes a bifurcation (in the mathematical sense). The old behaviour becomes unstable and the system undergoes a spontaneous transition to a new behaviour that is stable. The water flow organizes itself into a vortex — a macroscopic structure has emerged spontaneously out of the flow, see Figure 3.2.

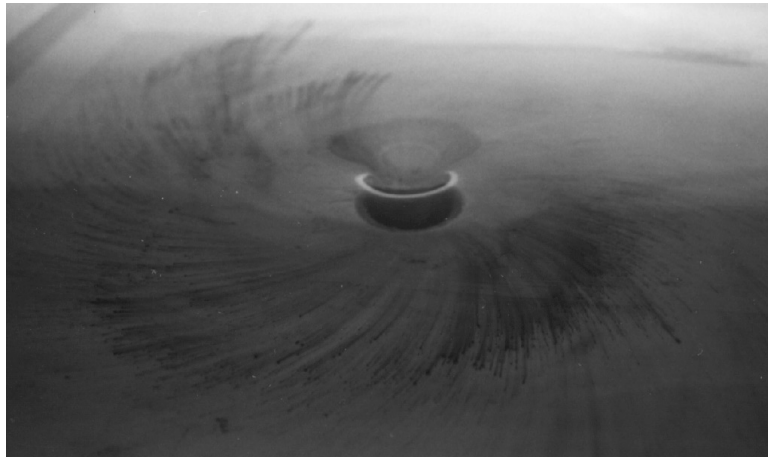


Figure 3.2: A self-organized vortex, here visualized with the aid of Potassium permanganate.

The vortex example is a classical dissipative system — a characteristic example of self-organization, which has been discussed by Prigogine [30]. Another self-organizing system is Bénard convection [14, 25, 42], which appears when a fluid is heated from below. (At a crucial heat flux the fluid organizes into hexagonally ordered rolls, which transport the heat more effectively than plain conduction of the heat. This is actually what happens when water starts to simmer.)

Prigogine has formulated criteria for the appearance of self-organization in a system [24, 25]:



- The system is dissipative — i.e. open and subjected to a flow which consumes energy at the macroscopic level.
- The system is far from thermodynamic equilibrium.
- Its parts co-operate in such a way that the system acts as a whole, self-catalytic — e.g. a non-linear system with some positive feedback.

In order to create self-organization in a dissipative system, such as one above, we only have to give the system an impulse, i.e. create the right conditions. Through the positive feedback, fluctuations will be amplified to the macroscopic level — the microscopic movements have suddenly organized themselves into macroscopic motion.

The system is in a state of dynamic stability, a continuously changing state, yet structurally stable. A typical example from atmosphere physics is the red spot of Jupiter, a vortex which has remained structurally stable for at least several hundreds of years [14].

In the 20s and 30s, Schauburger observed the structural stability of natural untouched water courses — although naturally he didn't use such terms [1, 34]. From his observations he suggested a way of regulating rivers, based on giving impulses to the water to self-organize into a stable river bed [35, 36, 37]. The principles of this kind of river regulation differs from that of classical ways of regulating rivers, which tries to steer the water into a certain course — with the associated risks of loosing the river bed stability at increased water discharges, with bank erosion and flooding and as the result.

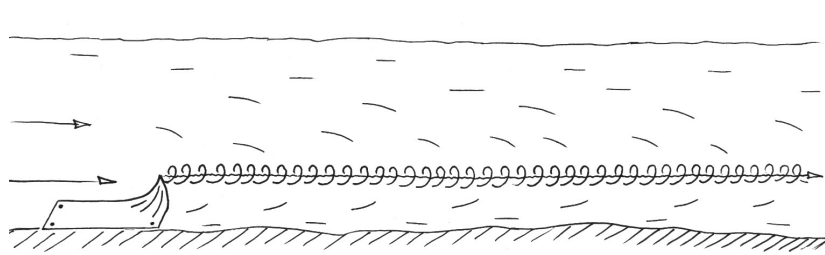


Figure 3.3: Indirectly acting guide elements, creating the right conditions, which make the water flow organize itself into a vortex along the course.

This kind of impulse generation has been studied by Kullberg [17] and Molin/Olsson [22]. By placing small guide elements in the main current a subpressure is created, which self-organizes a vortex along the river course, see Figure 3.3.

Note that we aren't trying to steer the water flow into a swirling motion. We merely create the necessary conditions, then the microscopic fluctuations will be amplified, the straight flow become unstable, and make a spontaneous transition into a swirling motion which is structurally stable.

### 3.3 Free and forced vortices

Flows that are circulating around a point can be grouped into two kinds of flow: quasi-forced and quasi-free vortices [10, 18]. An overview of some kinds of vortices is given in Table 3.1.

In a forced vortex the water mass is rotating rigidly, like in a centrifuge. With  $\omega = k$  we get  $v_\theta = kr$ , where  $v_\theta$  is the tangential velocity,  $\omega$  the angular velocity (constant) and  $r$  the radius. By definition  $r\omega(r) = v_\theta(r)$ . The inertial force (the centrifugal force in a rotating system) becomes:

$$F = \frac{mv^2}{r} = \frac{m\omega^2 r^2}{r} = m\omega^2 r$$

and thus increases with increasing radius.

$\omega =$	$v_\theta =$	Description	$F_{centripetal} =$
$k$	$kr$	Rigid rotation, forced vortex.	$mk^2 r$ , increasing with increasing radius
$\frac{k}{r}$	$k$	An example of a quasi-free vortex.	$\frac{mk^2}{r}$ , decreasing (with increasing radius)
$\frac{k}{r^2}$	$\frac{k}{r}$	Free vortex Potential flow. Energy per unit of mass constant. Angular momentum $L = v_\theta r$ constant.	$\frac{mk^2}{r^3}$ , decreasing (with increasing radius)

Table 3.1: Properties of free and forced vortices.

A free vortex appears when water is allowed to organize itself, e.g. at an outlet of a vessel, or in a tornado. In a free vortex the angular velocity of the flow varies with the radius (and increases towards the centre). We get  $\omega = \frac{k}{r^2}$ . This is of course an idealization. A real vortex often consists of a superposition of a free and a forced vortex, where the outer part is free, whereas the vortex centre is rotating rigidly, see Figure 3.4.

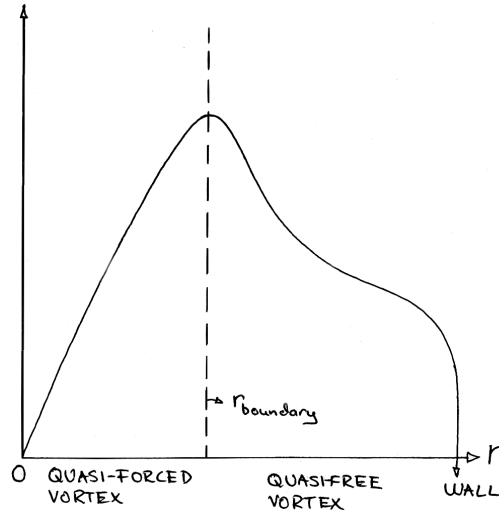


Figure 3.4: A typical vortex, compounded by a quasi-free and a quasi-forced part.

Let us define some directions of flow in cylindrical co-ordinates, and investigate closer some of the properties of the flow in the different directions, see Figure 3.5.

### 3.3.1 The axial velocity, $V_z$ , and reverse flow.

We can identify 3 kinds of flow in the axial direction, which appear in vortex-flows through a pipe [18], see Figure 3.6.

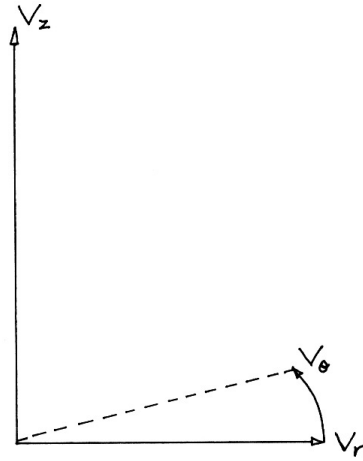


Figure 3.5: Flow directions: radially ( $V_r$ ), axially ( $V_z$ ), and tangentially ( $V_\theta$ ).

In case I all of the flow is in the main flow direction, though the axial velocity decreases towards the centre. In case II the central flow flows backwards (reverse flow). Flow of type III, where the central and peripheral flow goes in the main flow direction whereas a region in between is flowing reversely, can appear in regions with strong vortex generation<sup>1</sup>, e.g. at an inlet [18].

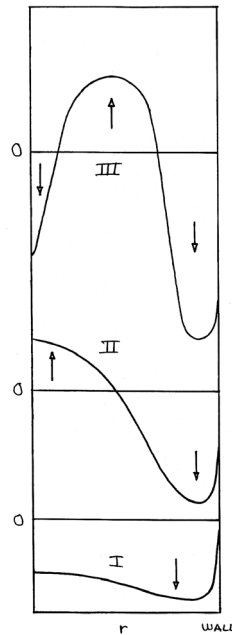


Figure 3.6: Different kinds of rotating flow, bifurcations (transitions) between different states: (I) All of the water goes in the same direction, (II) Return flow in the centre, (III) 3 directions of flow (Down/up/down).

The reverse flow that appears in case II and III can be important for mixing and separation applications, and has a stabilizing effect.

<sup>1</sup>Where the ration between Swirl and Reynolds number ( $\frac{Sw}{Re}$ ) is great.

### 3.3.2 The tangential velocity, $V_\theta$ , and its importance

The tangential velocity distribution,  $V_\theta(r)$ , naturally leads to the question of the forces acting in the radial direction. It is obvious that  $V_\theta(r)$  in some way reflects the forcing of the system. Let's have a look at the trumpet shaped vessel. We can imagine several ways of forcing or retarding the system:

- Centripetal forces from the outer form makes the water turn aside.
- Braking vanes at the rim retards the peripheral flow and thereby indirectly direct the watercourse towards the centre.
- Water is injected tangentially at the periphery and thereby strikes into the mass of water and accelerates it.
- A subpressure at the centre tows the water towards the centre.

Thus it is important to get a feeling for what is happening. Let us study these phenomena one by one.

A mass of water that rotates wants to continue straight ahead in the direction of the tangent. After some reflection one realizes that the water layer lying outside exerts a centripetal pressure which balances the inertia, whereby it keeps the mass of water in its course. Outer layers of water pushes onto each other, and at the outermost layer the vessel pushes onto the water. Consequently the vessel form has a significant influence on the appearance of the vortex, which hadn't been the case if the vessel had been larger in relation to the vortex, as is the case e.g. in a lake.

In a quasi-free vortex, the angular velocity increases towards the centre, and hence a larger force per mass of water is needed to sustain the centripetal acceleration that turns the water aside.

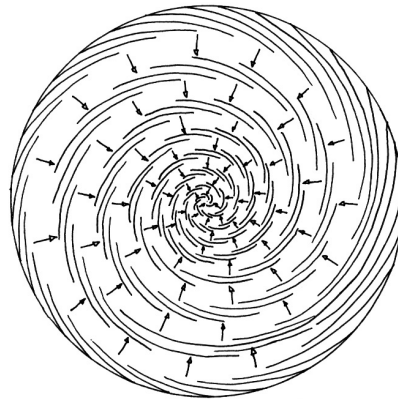


Figure 3.7: The centripetal pressure from the outer form. Outside-lying layers of water exerts a centripetal force on the inside-lying layers, and thus achieves a centripetal acceleration.

If instead there are braking elements at the rim, the peripheral vortex movement is dissolved. Water is retarded, and thereby isn't thrown outwards (in the direction of the

tangent) to the same extent, since its momentum has been decreased — thus a smaller force from the outer form is needed in order to sustain the balance. Schauburger used this for river regulation [34], in order to stop the meandering from eroding the river banks more and more. Imagine how a transient wave towards the periphery thereby is dissolved, and partly reflected back towards the centre of the stream/river bed.

If water strikes tangentially into the water mass at its periphery, we get a tangential acceleration there. This will counteract the free vortex generation (where the acceleration is taking part at the centre). If the outflow at the centre is small, all of the water mass will tend to begin to rotate rigidly.

A central outlet stimulates the emergence of a free vortex, which need a combination of tangential and axial movement. (Of course the movement in some sense is also radial, water is moving towards the centre, but not straight, rather in a quite curved manner.) There we have the necessary subpressure which can self-organize the media.

Let us now study the effect of a subpressure in the middle. Does it pull the water (towing it as it were), or does it merely leave room for water that is pushed in from behind?

The point is that the water molecules not only push each other, they also pull each other due to the attractive van der Waals forces and hydrogen bonds between the molecules (which e.g. give rise to the viscosity and surface tension of water). If we model a medium without attractive forces as plastic or rubber beads, which are bouncing about, we can imagine water as being rubber beads with rubber bands to the closest neighbours, or simply rubber beads with small magnets inside. These then will not only leave room for beads behind as they advance, but will also tow them with themselves.<sup>2</sup>

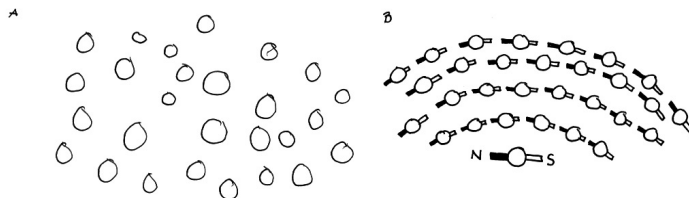


Figure 3.8: [A] Plastic beads — an ideal gas or fluidized particles. [B] Beads with small magnets inside — a fluid with attractive forces.

Outer layers thus will be pulled in by inner layers, resembling a structure like a paper or measuring tape that has been rolled up, see Figure 3.9. The outer layers also pushes inwards due to the fact that the outer form (the vessel) exerts a centripetal force. Since the circumference decreases towards the centre, the angular velocity has to increase in order to maintain the flow, and in order to conserve angular momentum in some sense — the same principle that makes a skating ballerina rotate faster, when she pulls the arms towards the body.

We can note the difference between pulling and pushing in a hydrodynamic system. It is especially clear at an air funnel, which behaves elastically. Whereas it is easy to pull a cable (or a rubber band) through a pipe, it is significantly more difficult to try to push it through.

<sup>2</sup>Also, the beads will try to align their fields with their neighbours', and thereby spin around, in a dynamical changing pattern, at the edge of order and chaos.

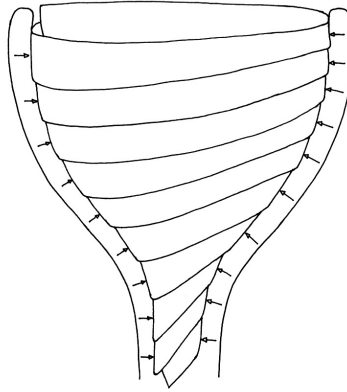


Figure 3.9: The measuring tape towing effect.

In a rotating flow, the air funnel at the centre consequently acts as a contracting force, and, just as the towing flow at the centre, plays a role for the centripetal acceleration and stability of the vortex. From this it is realized that a model of freely flowing water (water flowing with free surfaces) in some sense has to capture the attractive forces of the water molecules, and thus its surface tension.

### 3.4 Flow image modelling

In this section we are going to study ways to model the flow image, especially the toroidal vortex flow in the barrel. We will focus on describing the flow image of a system, without the need of knowing too much of the underlying mechanisms, which anyway are difficult to capture when we deal with active boundaries, as e.g. an air funnel. We will thus discuss approaches and ways to create models that capture the dynamics of the system, and hence can capture its typical behaviour, rather than focusing on the composition of (infinitesimal) fluid elements.

Thus we will not search for the most detailed model, but for the simplest possible model that has the same fundamental dynamic properties as the system. This view is very close to that of chaos science — which has shown that the essence of very different and seemingly complex behaviours often can be captured by almost ridiculously simple models [14, 23]. This is due to the fact that many dynamic properties and behaviours (e.g. at bifurcations) to a great extent are universal, and therefore appear in a wide range of very different mathematical systems. The behaviour of a simple system (intelligently chosen) therefore can tell us something about systems that wouldn't have been possible to analyse with partial differential equations, due to their complexity (caused e.g. by the hopeless boundary conditions that an air funnel generates).

#### 3.4.1 The handkerchief dynamics

Now, let us study the dynamics of the barrel with swirling water. The water surface is pulled down in a vortex at the centre, and then thrown out tangentially at the bottom, at the same time twisting together the surface.



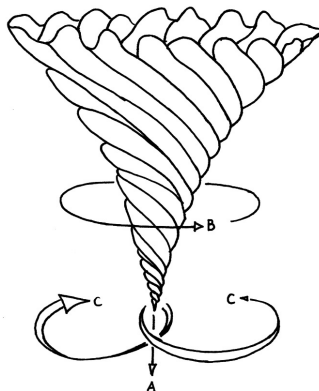


Figure 3.10: The handkerchief dynamics: To twist together and stretch.

The process can be likened to pulling a handkerchief through a hole, by seizing it at the centre, twisting it together, and pulling. The whole procedure can be summarized as: pull, twist and spread. It is obvious that a dynamics of this kind leads to mixing that in principle is close to that of the classic horseshoe of chaos science — stretch and fold. Points that originally are close to each other will be separated, and finally loose relation to each other. This of course is of importance for the mixing in the system<sup>3</sup>.

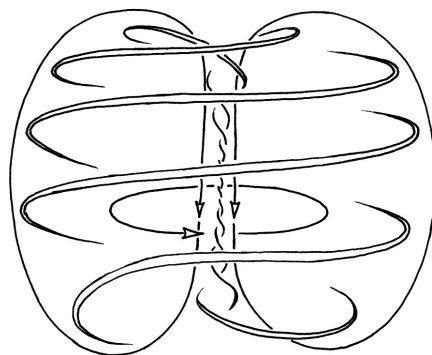


Figure 3.11: Toroidal vortex flow.

Once again regard the barrel with the swirling water. After the initiation of the process, the flow self-organizes into a structure that is stable and swirling. In the barrel a toroidal vortex flow appears. The flow is vaulting around a torus, at the same time as it is rotating faster towards the centre. This structure resembles so-called twisted scroll rings, which appear as solutions to a diverse fauna of dynamical systems [28, 44].

<sup>3</sup>If we could find a dynamical system that in its phase space exhibited a similar dynamics, and had a similar global flow, we could get some insight into the mixing of the hydrodynamical system by studying the mixing in the dynamical system [8, 27].

### 3.4.2 Chaotic pulsation in the vortex

The air funnel which has arisen at the centre can be likened to a twisted membrane, which tries to contract, but is stretched downwards by the subpressure, and of course also is affected by the complicated swirling flow. It can thus be regarded as a kind of non-linear spring, see Figure 3.12.

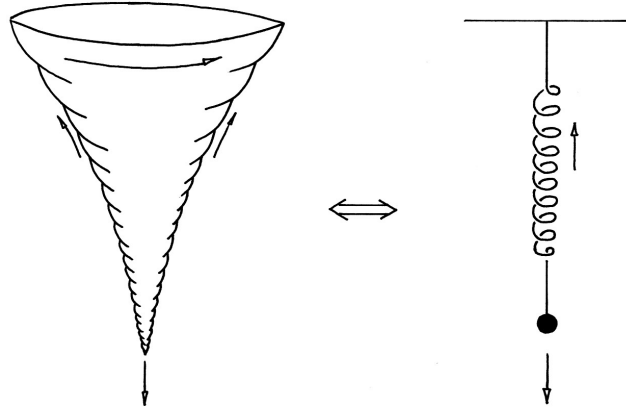


Figure 3.12: The non-linear membrane spring

At some flows the air funnel behave chaotically and start to pulsate aperiodically. The situation much resembles that of a dripping faucet [40], but with the difference that it is air and not water that drops! It would be interesting to investigate the presence of strange attractors in the system [23, 42].

### 3.4.3 Bifurcations

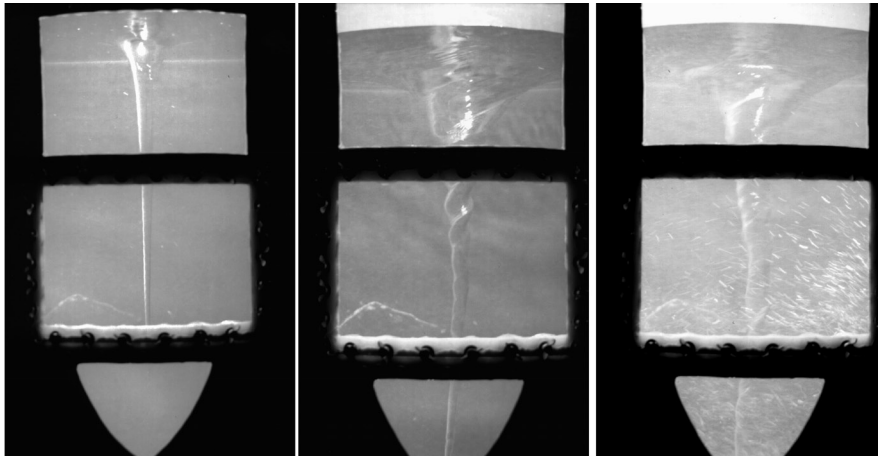


Figure 3.13: Bifurcations in the air funnel: [A] Hyperbolic air funnel [B] Superimposed twist after a bifurcation [C] More complicated funnel after successive bifurcations.

Another aspect of the vortex is the shape of the air funnel at the centre (or the pressure minimum, if no air can be sucked down). As the pump is started and the flow begins to rotate, the water surface dips slightly and smoothly at the centre. Then, at a critical

flow, a spear-shaped air funnel suddenly appears at the centre, which quickly widens into a trumpet-shaped form. The air funnel generation can thus be seen as a sudden collapse of one equilibrium state, into another, qualitatively different, equilibrium state.

The air column that appears forms a minimum surface. Surface tension tries to contract the surface, while the rotating flow tries to pull it apart. The force balance can be likened to that in soap bubbles [29], with the difference that the inner over-pressure in the soap bubble has been exchanged by inertial forces in the water, which pulls from outside.

From the simple hyperbolic rotation form, the funnel at certain critical flows undergoes further bifurcations to more complicated surfaces — one can imagine that a Hopf-bifurcation adds another frequency to the system<sup>4</sup>. At such a bifurcation the flow axis/funnel can begin to twist around its own axis and also form a spiralling (helical) space curve through the surrounding medium.

You could think that the twisted shape only is due to the fact that we have a boundary surface between air and water. What does the flow at the centre look like, if air isn't sucked down into it? The flow, it turns out, still generate spiralling and complex layers of water. Evidently a high degree of macroscopic organization of the flow exist in this case too.

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<sup>4</sup>There are several routes from a stable dynamics to a chaotic flow [13, 16, 42]. It would be interesting to investigate closer how the bifurcations in the vortex actually occurs.



## Chapter 4

# Oxygenation and ion precipitation

We will now study how the spontaneous generation of an organized vortex can be used for mixing-in and stirring applications. The active surface between water and air lends thought to applications like oxygenation of water and stimulation of chemical reactions.

### 4.1 The principle of the Plane pump

Schauberger made experiments with different kinds of stirring devices and vortex turbines. He developed an arrangement for pulling down oxygen to the bottom of lakes, see Figure 4.1. It was later patented in 1968 by his son Walter [39]. The disadvantage with this kind of direct stirring is the difficulty to sustain a vortex when the system is scaled up. In many cases a rotating water body is developed only in the vicinity of the rotor.

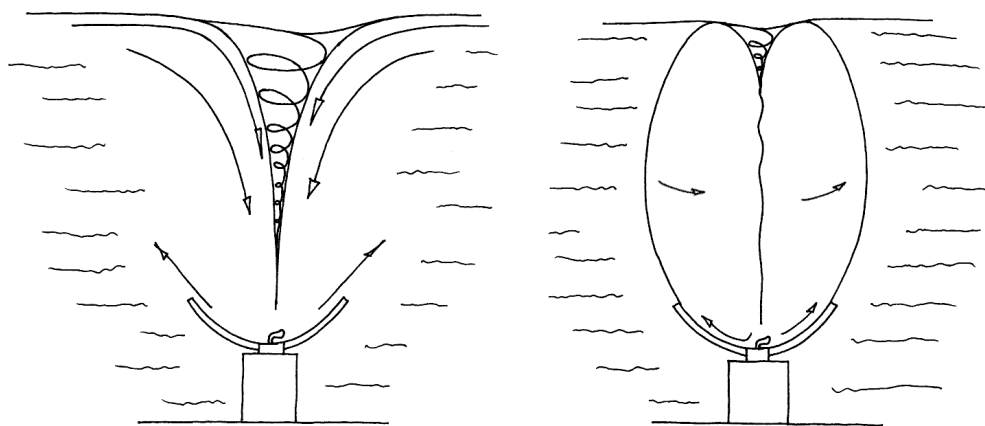


Figure 4.1: [A] Schauburger's oxygenator [B] Since the induced motion mainly is a rotating one, a water body is created, with little contact with the surrounding water.

What we actually would like to create is a flow from the surface down towards the bottom, i.e. a toroidal vortex flow. By the creation of a subpressure at the centre, the water may self-organize. By designing a suction pump in a suitable manner, this can be achieved without the problems that appear when water is only stirred in the middle. Aquagyro has used this principle in a stirring device [20] which sucks water down towards the bottom and then ejects it towards the periphery.

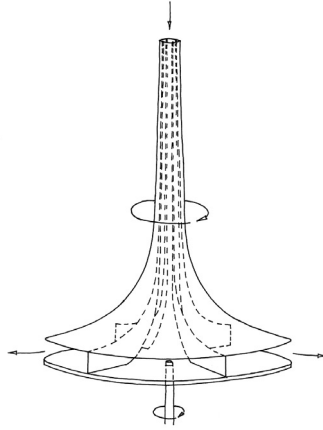


Figure 4.2: The principle of the Aquagyro.

It is thus in practice a question of creating a pump that uses the handkerchief dynamics, and then let the water organize itself. Then we get both an effective oxygenation and an effective mixing, with comparatively little expenditure of energy. This naturally leads the mind to the question of how this can be achieved in a simple and practical way. The plane pump, a centrifugal pump that uses the subpressure in the middle, turns out to be a simple construction capturing the dynamics.

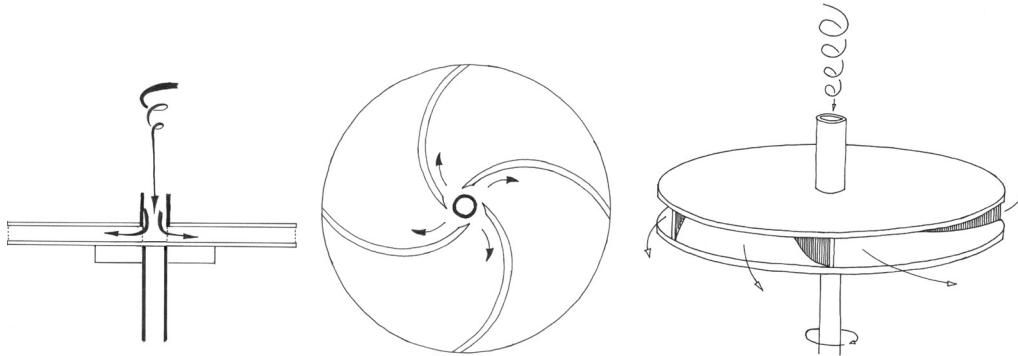


Figure 4.3: The principle of the plane pump. Water is sucked into the pipe in the middle and is thrown out radially towards the periphery.

Two circular plates, joined by radial guiding rims, are brought to rotate. Through a pipe in the middle of the upper plate, water is being sucked in and is then ejected towards the periphery due to the centrifugal force. Since the pipe can be made narrow, a substantial subpressure can be created. The swirling effect in the water is enhanced by the rotation of the plates. The surrounding medium quickly organizes itself to a toroidal vortex flow.

#### 4.1.1 Experimental set-up

An experiment with a plane pump at the bottom of a great barrel was set up, see Figure 4.4. The barrel, with a diameter of 50 cm, was filled with water to a height of 80 cm. At the bottom of the barrel the plane pump can be seen, driven by an axis through the bottom. Through the pipe, which makes up the axis, the pressure can be measured. (In separation applications, fluid can be extracted out of the central flow via the axis pipe.)



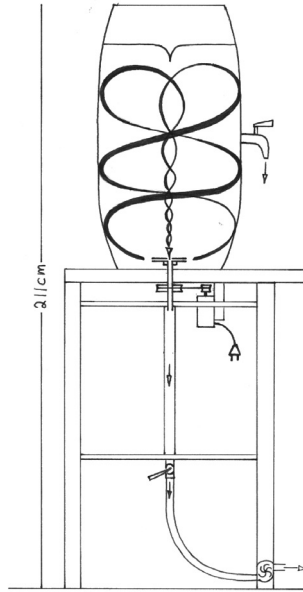


Figure 4.4: A drawing of the experimental set-up.

#### 4.1.2 Subpressures and equilibria

First the flow behaviour was studied at varying forcing. Already at a low effect, 30–40 W, the water organized itself into a toroidal vortex flow. Different kinds of guide vanes in the pump were tested<sup>1</sup>. Straight vanes turned out to be more efficient than vanes directed backwards. Vanes directed forwards<sup>2</sup> turned out to be the most effective for vortex generation.

First a beautifully trumpet formed hyperbolic surface was created. At a critical angular velocity (rotation speed) the funnel began to twist, and formed a complicated minimal surface in a rotating (curved) geometry. At higher rotation speeds the pump started to squeeze off air bubbles, with a strong injection of air as a result, see Figure 3.13.

Let us estimate the kinetic energy of the rotating flow. By analysing the expression for inertial moment, and noting that the rotation in a vortex normally doesn't occur rigidly (i.e.  $\omega$  isn't constant inside the water body) we arrive with the expression:

$$W_k = \frac{1}{2} \int \omega^2 r^2 dm = kmR^2 \omega_R^2$$

Here  $W_k$  is the kinetic energy,  $dm$  an element of mass,  $\omega$  the angular velocity and  $r$  the radius.  $R$  is the outer radius (in some sense) of the vortex, and  $\omega_R$  the angular velocity of the vortex at this radius. After integration we arrive with an expression similar to the one at the right hand side, with the constant  $k$  which depending on the type of flow.

At rigid rotation of a cylinder we have  $k = \frac{1}{4}$ . For a quasi-free vortex (which we coarsely approximate to be cylindrical, with  $\omega(r) = \frac{R\omega_R}{r}$ , we get  $k = \frac{1}{2}$ . For an ideal free vortex,

<sup>1</sup>Note that the fact that a certain vane curvature makes the pump efficient to pump water not necessarily makes it efficient to create a swirling flow in the vessel, as the way the water leaves the pump is also relevant for this, not just the pumping efficiency.

<sup>2</sup>At the periphery.

$\omega(r) = \frac{R^2 \omega_R}{r^2}$ , the integral diverges at the centre. If we note that there is an air column at the centre, and estimate its radius to approximately  $R/10$ , we get  $k = \ln(10) \approx 2.3$ . With  $R = 0.25$  m,  $\omega_R \approx \pi$  rad/s (half a revolution per second) and the amount of water to 100 litres, this corresponds to energies of approximately 15, 30, and 140 Ws, for rigid, quasi-free, and free vortexes respectively.

The supplied mechanical effect (from the pump) is probably significantly less than the 70 Watts which are fed to the pump as electrical effect at full speed. The efficiency, through driving band, bearings and friction in the pump, probably is in the range 20–40%, which gives a net effect in the range of 15–30 W. If we take into account that it could take 10–20 seconds for the vortex to develop, we find that supplied energy in order to accelerate the vortex is of the same magnitude as for a free vortex. Of course the calculation is just a very coarse estimate.

Losses due to the inner friction of water should correspond to the net effect the pump supplies when the vortex has had time to develop fully. These reasonably should be quite small, since the rotation speed of the pump could be reduced significantly (from 10–15 revolutions per second to 3–4) with maintained vortex formation.

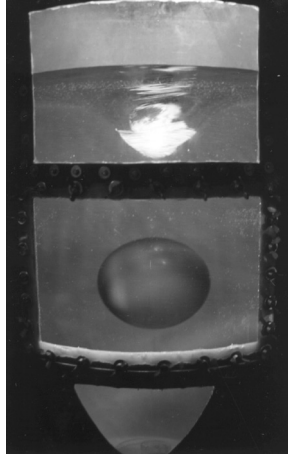


Figure 4.5: The experimental set-up with the barrel, as seen from the side.

The subpressure thus formed was measured with a manometer, a tall column of fluid, connected to the centre of the plane pump (from below). The measurement isn't entirely trivial. We noted that a pressure reduction corresponding to the height of the water level in the barrel wasn't required to pull the funnel all the way down to the inlet pipe of the pump. This could be of importance if the technology is used e.g. at oxygenation of lakes or ponds. Under normal conditions, a subpressure in the pump corresponding to 60–70% of the height of the water level in the barrel was enough to pull down air to the bottom. Hence the rotating water body assists in lowering the pressure at the centre — the pump gets help from the flow when the latter has had time to organize.

The inlet pipe had some importance for the stabilization of the vortex. Without this pipe the upper of the rotating plates tended to interfere with the lower part of the vortex.

If a ball was placed at the centre of the vortex, the sucking in of air was effectively prevented. A strong subpressure could then be created. The subpressure would fall below the measurement range, -200 mBar. Injection of a solution of potassium permanganate showed that the flow still was toroidal, and formed a complicated geometry at the centre, with superimposed spiralling flows. At high rotational velocities pulsation could be

observed through the pump<sup>3</sup>.

Braking vanes placed at the wall could to some extent direct the upper flow towards the centre. It was, however, important not to make the vanes too large.

## 4.2 Oxygenation of water

Now, how could the above be used for oxygenation? We can discern three distinct cases:

- An air funnel is pulled down, and is twisted off in the pump, leading to a stream of air bubbles being ejected along its periphery as the result. This causes a forceful but efficient oxygenation, suitable for industrial applications.
- A stable air funnel is pulled down towards the pump, acting as an active surface, which facilitates mixing in of air in the water. The surface of the water is, as it were, moved closer towards the bottom, at the same time as the mixing in increases due to the increased circulation. The water is oxygenated in a more peaceful way (which doesn't disturb life at a lake bottom to the same extent).
- Oxygen rich water is pulled down without the development of an air funnel — e.g. with the aid of an inlet-suction vessel.



Figure 4.6: The Repulsator.

Oxygenation at a small scale was investigated in 1988 by Nordell and Nordmark [26]. A small Aquagyro stirring device was placed in an egg-shaped vessel (a repulsator) filled with water, after which it was started. A stable vortex funnel, which assisted oxygenation, developed. After one hour the water had reached a good level of oxygen saturation.

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<sup>3</sup>One may ask what the flow image would look like in the pump if only one of the plates would rotate, or with a geometry like that of Schauburger's rill plates [1]. This would lead to a discussion of Taylor-Couette-like flow between the plates, with the possibility of mode locking of water rolls towards the rill plates in the latter case, but that would fall outside the objective of this report.

Description	Before	After	Note
Temperature[ ° C]	22.5	23.2	
Concentration of $O_2$ [mg/l]	2.39	8.51	Full oxygen saturation

Table 4.1: Oxygenation in an egg-shaped vessel, “Repulsator”, by Nordell and Nordmark.

At another experiment, made by Aquagyro at Pålträsk water supply in 1990, an increase from 0.4 to 10.5 mg/l was observed [6]. It was also noted that the smell of hydrogen sulphide ( $H_2S$ ) had been eliminated.

In order to investigate oxygenation at a larger scale, we performed an experiment with the barrel — diameter 50 cm, height 80 cm. At the bottom a plane pump was placed, powered by a 70W sewing machine motor with rotation speed regulation. The oxygen concentration was measured with a Macherey-Nagel titration rest, Visicolor Oxygen SA10 (0.2–10 mg/l).

A few seconds after the start of the pump a slurping sound was heard and a spear-shaped vortex funnel was created, which soon widened into a trumped-like shape. The water was quickly filled with small air bubbles. Even with energy input as low as 40 W, a good oxygenation could be achieved. With a correctly shaped plane pump water was oxygenated in 15–30 min, see Figure 4.7. Both cold water and water with room temperature was oxygenated well, in both cases to about 90% of full oxygen saturation at the actual temperature.

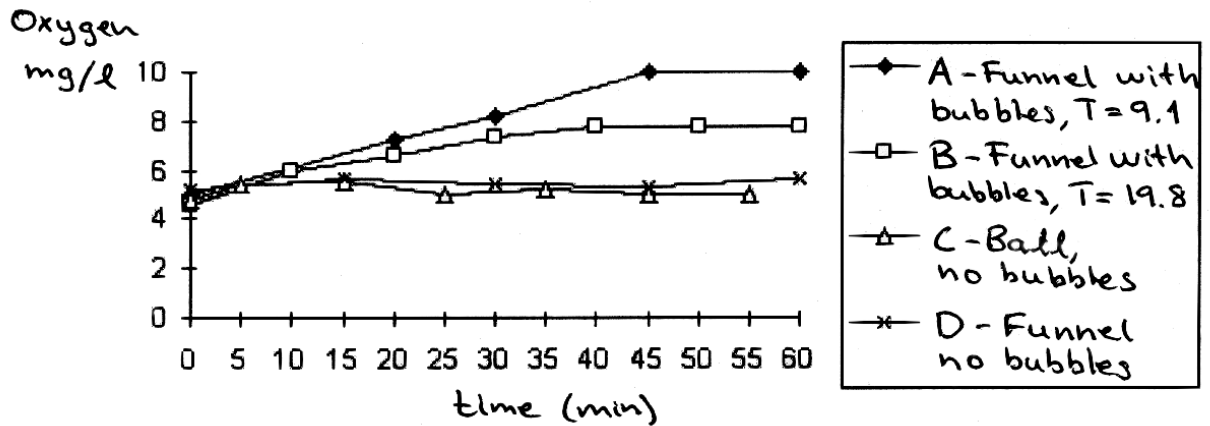


Figure 4.7: Oxygen concentration as a function of time. [A] and [B] with the generation of air bubbles, [C] with a ball, which prevented the pulling down of air, [D] with a stable air funnel, but without any air bubbles.

If no air funnel was developed (e.g. by placing a ball at the centre), no oxygenation took place. This was also the case if a trumpet-shaped funnel was developed, but without any twisting off of air bubbles taking place. It thus seems as if it is only the small air bubbles that play an important part for the oxygenation to take place.

### 4.3 Ion-precipitation

At an experiment at Pålträsk water supply in 1990, Aquagyro discovered that their agitator seemed to facilitate precipitation of iron and manganese ions [7]. An hyperbolic vessel of the height of about 1m, with an Aquagyro stirring device inside, had been placed in a tank with the volume of  $3m^3$ . During the treatment precipitated iron could be observed in the tank. At the following filtration of the water in a gravel filter, manganese ions precipitated to a large extent, which the traditional treatment (with compressed air) didn't achieve. The iron concentration of the treated water at analysis was found to be the same as that of untreated water, but iron in the sample didn't precipitate when subjected to pressure airing, which was considered remarkable. The humus concentration of the water was high, and it was speculated that iron could have become organically bound. Another explanation advanced, was that iron had formed some kind of complex, and therefore didn't precipitate by the pressure airing.

State	Mn	Fe	Note
Before treatment	0.26	0.23	
During treatment	0.29	0.24	Water temperature 7 °.
After gravel filtration	<0.05	0.21	Iron does not precipitate when subjected to pressure airing in the lab.

Table 4.2: Precipitation of manganese and iron ions, Pålträsk water supply.

At an earlier experiment at Nordmaling in 1987, a decrease of Mn and  $\text{NO}_2$  ions had been observed. An experiment at Vistbäcken water supply, with its extremely high concentration of iron in the water, had shown an efficient precipitation of iron by the process (more efficient than the traditional pressure airing, as opposed to the results from the experiments at Pålträsk) and also a decrease of the manganese concentration [7].

It would be interesting to replicate these experiments more systematically, with e.g. a plane pump in the barrel, and with water with different ion concentrations.





# Chapter 5

## Separation

In this chapter we will study how a swirling flow may be used in order to remove particles and separate fluids of different densities. We'll start by studying existing hydrocyclone technology and its function, and then go on to see how the self-organizing flow that we have previously discussed may be used for separation applications.

### 5.1 Hydrocyclone technology

A hydrocyclone is basically made of a conical pipe, see Figure 5.1. Water is injected tangentially at high pressure (1–3 Bar) in the upper part, which creates a strongly rotating fluid column. The outer layers of the fluid will form a (quasi-) free vortex, whereas the more central parts will rotate rigidly. At the very centre an air column is often created. Due to the variation of the flow with respect to the radius, light and long particles will move towards the centre more than the heavier and rounder ones. By letting water at a certain radius being separated at the lower part of the hydrocyclone, the “reject” flow, and by letting the central flow leave at the upper part, the “accept” flow, a separation of particles (especially heavy ones) is obtained.

Hydrocyclone technology has proven useful for pulp industry (separation of sand and sticks) [15, 12], for separation at mining industry [41], and for treatment of runoff water at car washes [33]. Usually the separation is done by several steps.

Small hydrocyclones tend to have a better separation performance than larger ones. Small threads, however, tend to create problems by clogging the reject opening, e.g. in textile industry applications. Power consumption tend to be some kilowatts for a hydrocyclone on the length 1 m.

#### 5.1.1 Estimating separation properties

In the hydrocyclone, the separation performance depend on which particles move towards the centre, or central flow. How could separation properties be estimated numerically? One way is to simulate different particle trajectories and make statistical estimates. In practice, however, this may be very difficult to carry out.

When it comes to real applications, what is of interest is to estimate size and other properties of particles which take the accept or reject path. Often a boundary layer

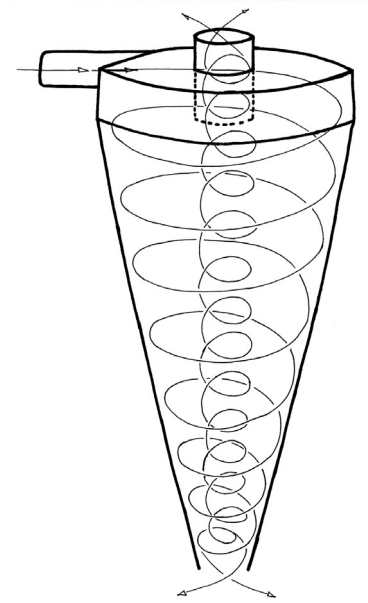


Figure 5.1: The principle of a hydrocyclone.

exists in the flow, where particles of the right size stand still in the flow — in the sense that they neither move towards the accept or reject exits. This becomes more obvious by considering a rotating flow — it is possible to imagine a particle keeping a constant radius, neither moving towards the periphery nor the centre. Many simulation approaches therefore focus on determining equilibrium sizes of the particles, i.e. particles that will get stuck in a boundary layer [9].

To focus on a particle tends to miss the global flow, but is of course a good way of obtaining separation characteristics when the flow image is rather simple, as in the hydrocyclone. At the applications with self-organizing flow that we have discussed, the flow has more freedom, and is therefore more difficult to estimate numerically. We will therefore choose a more empirical approach.

## 5.2 The principle of self-organizing separation

Now let us for a moment reflect upon the flow image in the Stuttgart experiment. Could it be developed into a separation technology that qualitatively differs from hydrocyclone technology? At the Stuttgart experiment suspended materials accumulated at the centre. Two questions naturally arise:

- Where in the pipe does the concentration of materials towards the centre occur, and what factors affect the tendency to accumulate them?
- How could the central string of particles be separated without disturbing the flow?

It can be shown that the free vortex region is important for the centring effect on particles [9]. In such a region an effect similar to that which occurs when a particle lags the water flow takes place — a pressure gradient pushes the particle towards the centre. Even

heavy particles can be pushed towards the centre, at least transiently, until they have achieved enough tangential velocity to be thrown outwards again.

Consequently we need an acceleration of the rotation speed towards the centre, together with a discharge of the flow (e.g. in the axial direction) in order to get an effective separation. If the inlet vessel is made too large, the whole water mass will tend to rotate almost rigidly in the peripheral region. This leads to a reduced centralization of particles, and thus a less effective separation.

There are several ways of solving this issue:

- The inlet vessel is made narrower, which better directs the formation of the vortex.
- The injection is adjusted, so that it improves the conditions for the emergence of a free vortex region.
- Braking vanes are introduced, which dissolve the stiff rotation at the periphery, and thus force water to organize towards the centre. In practice this adjusts the injection and makes the vessel look smaller to the flow.
- The form and proportions of the vessel are adapted to stimulate the right kind of vortex generation along a longer part of the vessel.

Separation based on the first two principles has been investigated by Rapp [32]:

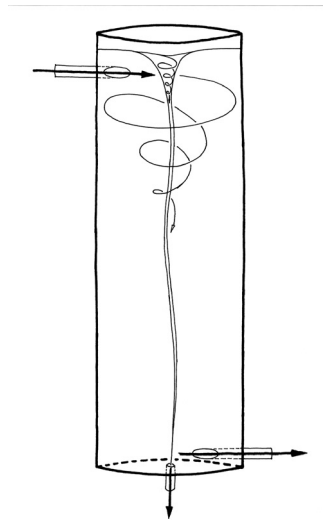


Figure 5.2: The principle of the centripete. In the narrow vessel a pronounced spiralling vortex emerges, which supports the separation of particles well.

In a cylindrical vessel called centripete, of 40 cm height and 9 cm diameter, see Figure 5.2, water enters tangentially at the top, through 3 inlets making an angle of about  $30^\circ$  with the radius. Dirty water is sucked out through a central outlet at the bottom, while treated water leaves the vessel by a tangential outlet at the periphery at the lower part. The inflow is 6.6 l/min. The outflow is 3.3 l/min both in the central and peripheral outlets. Particles (a suspension of coarsely ground coffee) is injected into the inlet hose about 1 m before the inlet to the centripete.

Rapp found that 93–96% of the particles could be collected through the central outlet. It was furthermore observed that heavy particles (used coffee particles, that had been boiled with water) in principle wasn't separated at all — they even tended to go in the peripheral outlet (42–50% of those particles went in the central outlet). It thus seems essential that the density of the particles is about that of water.

If a radial outlet was used, somewhat less (91%) of the particle phase was separated. This could be due to the fact that a radial outlet disturbs the vortex, see below. A tangential vortex more easily supports the swirling motion at the lower part of the vessel.

### 5.3 Separation with an egg-shaped inlet vessel

In order to investigate self-organizing separation we performed the following experiment:

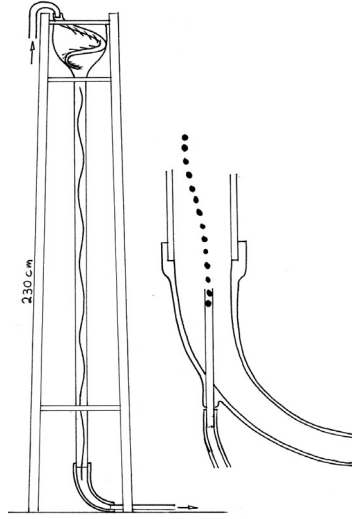


Figure 5.3: Stuttgart experiment set-up with an egg-shaped inlet vessel.

The inlet of the Stuttgart experiment set-up was replaced by a more narrow and egg-shaped one, with the water injection arranged in such a way as to support vortex generation, see Figure 5.3. Suspended material, which was injected, tended to be accumulated at the centre of the tube. In the upper part of the tube a rotating flow with  $V_z$  directed upwards was observed, i.e. a flow of type II. This meant that materials which were caught at the centre weren't flushed downwards with the flow, but stayed in the upper part of the tube — a toroidal vortex flow, stretched in the vertical direction. About 1.5 m below the inlet vessel the flow changed from type II to type I, i.e. the rotation had decreased in relation to the axial motion, to such an extent that  $V_z$  was directed downwards across the whole section of the tube in that region.

The quasi-free vortex flow means that surfaces swirl around each other, faster and faster towards the centre. Since also the axial velocity  $V_z$  varies with the radius, the particles in the vessel follow complicated screw-shaped trajectories, see Figure 5.4.

In order to separate the particles which accumulate at the centre (as a central string), a narrow pipe,  $\varnothing_i = 4$  mm, was introduced, and connected to a vessel with a subpressure. A tap opened and closed the connection to the subpressure vessel.

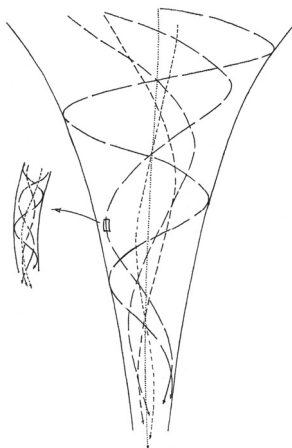


Figure 5.4: Flows within flows. Here surfaces of water swirl around each other. The particles describe a screw-shaped dance.

A sharply bent outlet for the peripheral flow turned out to disturb the flow too much. By arranging a smoother transition, a more stable vortex flow was achieved also in the lower part of the tube. The flow through the thick peripheral tube was about 0.6 l/s. (When the tap was opened a small fraction of this would go through the central outlet instead.)

A suspension of water and coarse-ground coffee was poured into the overflow vessel, which surrounded the egg-shaped inlet vessel, and mixed quickly with the inflowing water. As it was flowing down into the tube, the material would concentrate along the vortex centre.



Figure 5.5: The undulating and spiralling central flow has locked together with the central outlet — coffee particles which have accumulated at the centre are removed from the rest of the flow.

When the subpressure was connected to the narrow pipe, the central string of coffee locked onto the central outlet, and hence it could be separated effectively, see Figure 5.5. When coarse-ground coffee (“boiling coffee”) was used,  $\varnothing \approx 0.5\text{--}1.5$  mm, most of it somewhat

lighter than water, more than 90% of the coffee phase was separated together with an amount of water which was a fraction (a few per cent) of the flow through the large tube. Fine-ground coffee (“percolation coffee”), which is made of smaller,  $\phi \approx 0.2\text{--}0.5$  mm, and heavier particles (60–70% of the phase heavier than water), were separated significantly less well.

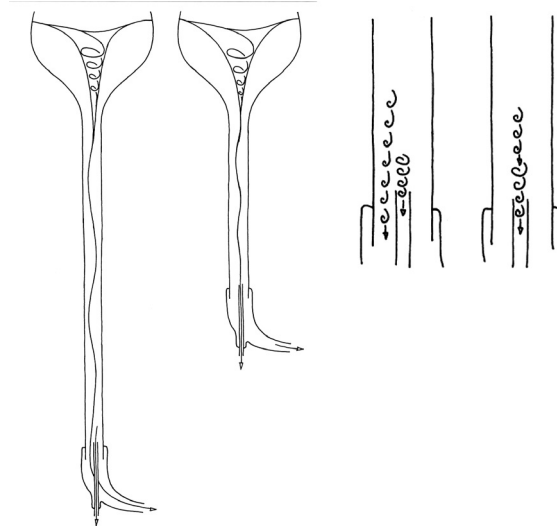


Figure 5.6: The upper and lower pressure minima are locked together.

Two things turned out to be important in order to achieve a successful separation:

- To make the tapering of the tube for the peripheral flow smooth, to avoid disturbing the rotating flow.
- That the pressure minimum generated by the inlet vortex is relatively well defined at the outlet, making possible for the pressure minimum at the central separation outlet to lock together with it.

The latter in particular means that the tube mustn't be too long. The ratio between tangential and axial flow (swirl) is also important. At times when the upper pressure minimum was ill defined at the lower part, a temporary lock-on could be observed. The lower part of the vortex funnel — which is more like a thread — then behaved like a rubber string that is stretched (but along a curved line!) and then suddenly released. This rubber band dynamics is due to the fact that the vortex centre (the pressure minimum) behaves as an elastic and twisted membrane — a non-linear membrane spring.

### 5.3.1 Separation of pieces of thread

Experiments with separation of pieces of thread were successful. Pieces of sewing thread, 7–14 cm long, mixed up with water was very effectively separated — more or less all of the pieces made it to the central outlet. Even tangled pieces were separated well. Long particles (e.g. rootlets or small twigs) should not be present, since the pieces of thread would wind themselves around them, and clog the outlet. Pure thread suspensions however, showed no signs of choking up.



## 5.4 Self-organizing separation in a barrel

The separation method of the preceding experiment required a flow through a pipe, or a lot of pumping. Could it be possible to use the separation principle for a smarter separation in large vessels, or for quickening of sedimentation in basins? In order to investigate the separation possibilities in a large and wide vessel, e.g. a basin, some experiments were performed in the barrel, with a somewhat modified plane pump. A narrow pipe (a central outlet) was mounted at the centre, and the larger pipe there was shortened or removed.

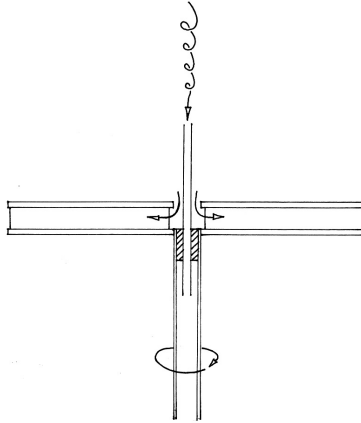


Figure 5.7: The modified plane pump. A narrow tube for the extraction of central axis flow was mounted at the centre of the axis.

### 5.4.1 Separation of suspended materials

The barrel was filled with water mixed with coarse-ground coffee. When the plane pump started, water organized into a toroidal vortex flow in the barrel. Water and particles that weren't caught at the centre, were thrown out at the periphery, where they recirculated towards the surface, there being pulled towards the centre again. Particles significantly heavier than water weren't caught by the central flow, but tended to accumulate at the bottom of the vessel, below the rotating plane pump — just as tea leaves are accumulated at the centre of a tea cup — especially if the pump was run intermittently.

The toroidal vortex flow gathered the lighter particles in a funnel-like structure at the centre. By applying a subpressure at the central outlet during short periods, the concentrate at the central string could be separated. By making the pulses brief, dilution of the separated fraction was avoided. Fine-ground coffee (“percolation coffee”) was separated significantly less well — as in the egg-tube experiments. Most of it didn't accumulate in the central vortex, but sank slowly towards the bottom of the barrel, where it sedimentated close to the axis.

### 5.4.2 Removal of oil from water surfaces

The ability to suck up a concentrated central string of flow raised the question as to whether it would be possible to separate oil floating on the surface of water. This

would lead to applications such as oil sanification, something that had been advanced by Aquagyro [20].

In order to investigate this more closely, 200 ml of oil (rapeseed oil) was poured out onto the water surface in the barrel, after which the plane pump carefully was started. About 30% of the oil accumulated at the centre, and formed a quite aesthetic yellow funnel, which could be separated. If the flow was made more violent, the fluid became opaque due to suspension of oil in the water. This happened if the flow was made forceful enough to throw out air bubbles. Only oil floating on the surface could be separated. Hence a very careful flow is needed in order to collect oil, which can be extracted by a small pump that sucks up the oil funnel from above.

## Chapter 6

# Applications

We will now try to outline some applications of self organizing flow technology. We will also discuss possibilities of scaling up the technology in different ways.

### 6.1 Treatment of drinking water

The experiments with oxygenation shows that the technology can be used for oxygenation of water and consequently for “airing” of bad smell, e.g. from hydrogen sulphide. Ions of iron and manganese are likely to precipitate effectively. This means that the technology has potential applications at drinking water treatment, and implies possibilities to reduce dependence on chemicals at metal ion separation. Oxygenation of aquaria is another application — this brings the additional advantage of effective water circulation to the aquarium.

### 6.2 Treatment of industrial process water

Due to the demand for increasing environmental concerns in industry, the need of closed process systems has increased. Closed systems leads to the problem of getting rid of anaerobic bacteria from the system. Here the effective airing previously discussed could have important applications. With an effective circulation and mixing in of oxygen, aerobic bacteria (responsible for breakdown of organic tensides) are favoured. This leads to a state of the water system more resembling that in a natural stream than that of a stagnant non-circulating pond.

Another application is at flotation, effective mixing in of air bubbles in a fluid, which normally is quite energy consuming, since the air bubbles has to overcome the pressure of the standing water column during the process. With the plane pump this is solved since air is sucked into the pump where it is dispersed. Since the water is flowing toroidally, air bubbles will not rise upwards immediately, but instead drift in the radial direction — thereby being spread effectively.

When it comes to separation, the technology have applications especially for the removal of fibres in textile industry.

### 6.3 Treatment of sewage water

An interesting application is treatment of sewage water. Here the interesting areas are separation of sediments, and effective dispersion of oxygen to aid the decay processes.

An example would be the following: A plane pump ejects air bubbles and brings the water to rotate. Since the air is finely dispersed inside the pump, and then is effectively distributed when the mixture is ejected in the radial direction, the mixing in of air (and thus oxygen) is both effective and economic. Instead of pressing air into the water at the bottom, we pull the surface of the water down to the bottom, as it were.

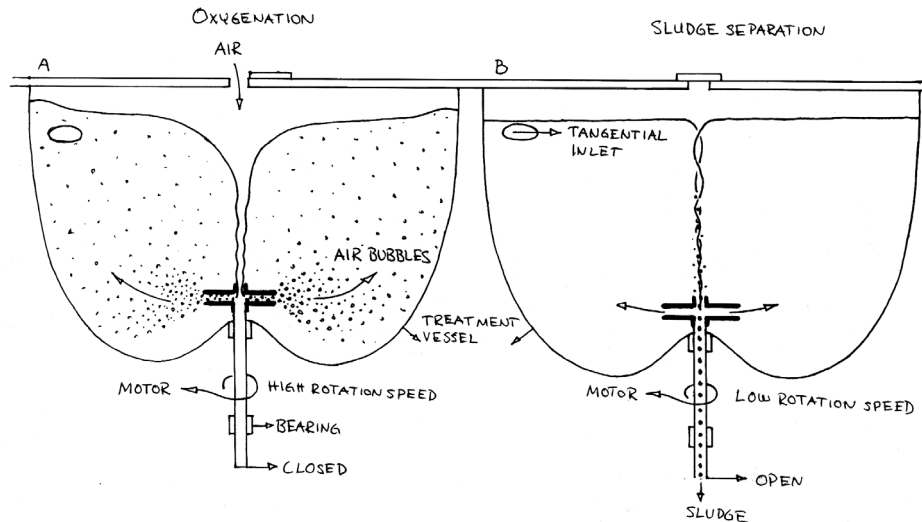


Figure 6.1: Oxygenation and separation at treatment of sewage.

It is also possible to combine parts of the sedimentation process with the above. While heavy fractions of the sediment sink to the bottom, and are concentrated below the pump, as leaves are gathered at the centre of a tea cup, lighter fractions, with a density closer to that of water, could at least partially be separated by a central outflow in the pump. In that case the plane pump should rotate more slowly.

The separated concentrate could be treated as sewage sludge, while the combined rotation and injection of air by the plane pump would assist sedimentation and decay of remaining pollutants in the basin.

### 6.4 Restoration of ponds and water courses

Let us conclude the discussion by studying how a self-organizing perspective could be used in nature, e.g. for oxygenation or regulation of natural water courses.

#### 6.4.1 Oxygenation of ponds and minor lakes

If the oxygenation technology is scaled up, it should be possible to use it for the airing of fish ponds and minor lakes with oxygen deficit or insufficient natural circulation, see Figure 6.2. At these applications it is suitable to use a stable vortex funnel, or to only

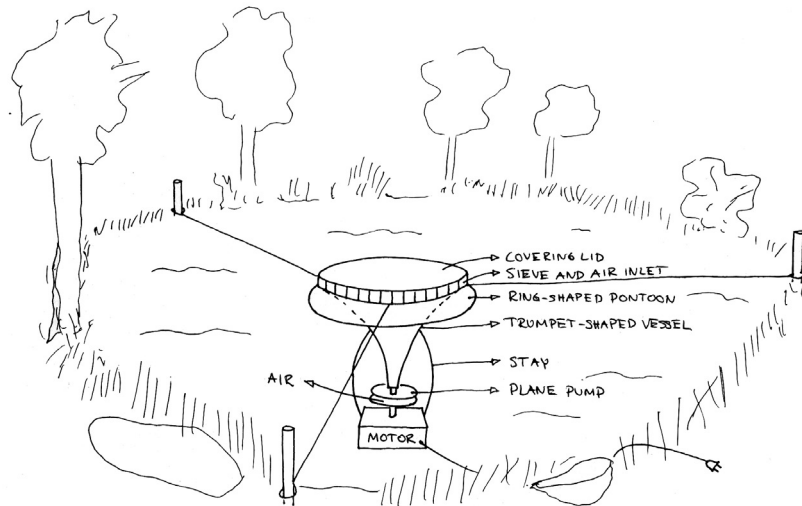


Figure 6.2: Restoration of water courses with the aid of the principles.

carefully pull down oxygen rich surface water towards the bottom, in order to avoid that bottom sediments are stirred up.

In 1988, Aquagyro demonstrated a scaled up version in a swimming basin [4]. To protect the vortex against outside perturbations, such as underwater currents, Aquagyro [5, 21] developed a hyperbolic “reaction vessel” to be placed above the inlet to the suction pump, see Figure 6.3. The form of the vessel is probably not critical, and in calm waters, e.g. a canal, perhaps not even necessary. In shallow waters one might imagine the use of specially designed inlet nozzles, which direct the surface water to the inlet.

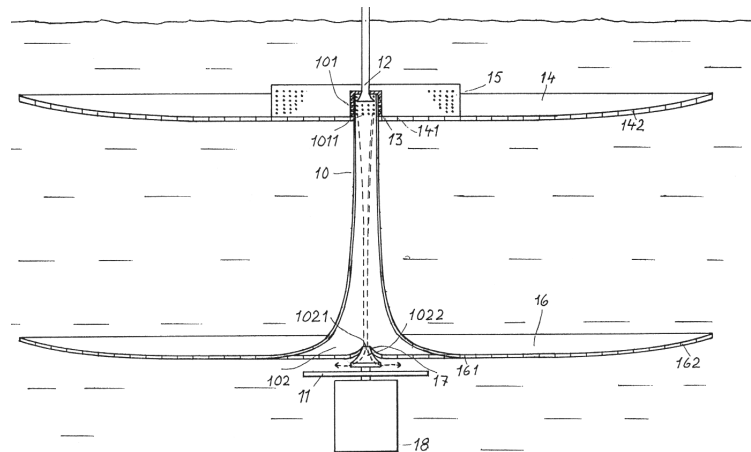


Figure 6.3: Aquagyro’s principle of oxygenation at a large scale.

Walter Schaubeger refers to an experiment in the lake Pfäffikersee by Zürich [38]. The lake was in very bad condition. Previously an experiment with traditional pressure airing to get oxygen down to the bottom had been tried, but it had stirred up oxygen deficient bottom sediment to the surface with rather devastating results, and had had to be abandoned. Instead two vortex oxygenators were placed in the lake. The vortex experiment worked reasonably, and indicated that the technology could be used at a rather large scale.

### 6.4.2 River regulation and restoration

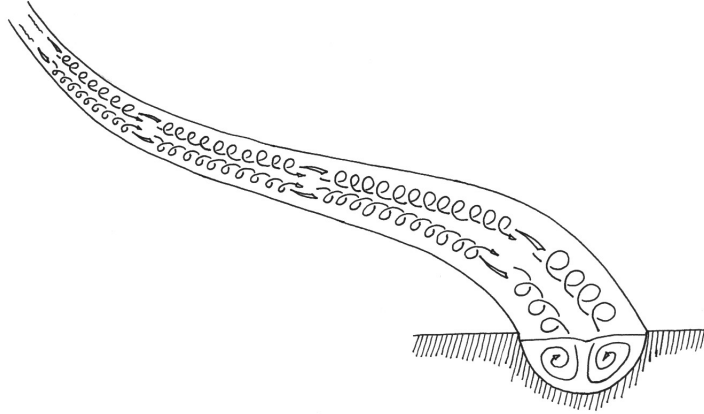


Figure 6.4: Stabilization of water courses by the use of vortex inducing bodies

The self-organizing perspective represented by Schauberger implies another perspective on the regulation of rivers. Instead of trying to lead water into certain trajectories, the focus is on letting the watercourse self-organize. Figure 6.4 shows an example of this — how an indirect generation of a self-organized vortex in the longitudinal direction can stabilize the river-bed, with decreased flooding and erosion of the shores as a result.

By immersing vortex inducing bodies in the water [36], structurally stable vortices in the axial direction of the flow is created, which behave elastically (like the pressure minimum in the egg-tube) and which stabilize the watercourse.

This kind of river regulation and shore maintenance has been studied by Kullberg [17] and Molin/Olsson [22] with promising results.

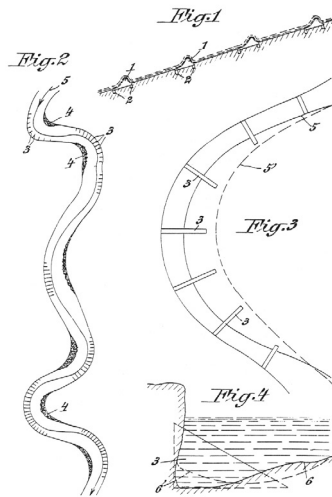


Figure 6.5: Excerpts from one of Schauberger's patents [35] for the regulation of water-courses

Another example is to station obliquely positioned logs across the river to slow down the water flow at the periphery, see Figure 6.5 and Figure 6.6, and thus indirectly direct the



water towards the inner curve — a principle used by Schaubberger for river regulation in Austria [35].

In that way the river-bed is stabilized and shore erosion is decreased, in the way indicated in Figure 6.5. A rather calm “marshy” region is thereby created at the outer curve. The following picture, with an example of natural river regulation in the Freinbach stream in Austria, ends the chapter.



Figure 6.6: Displacement of the axis of flow towards the inner curve, by the use of obliquely positioned logs, which slows down the flow at the outer curve. Freinbach in Steiermark district, Austria.



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## **Self-organizing Flow Technology – in Viktor Schaubberger’s Footsteps**

This report tries to evolve a new perspective on the ideas of the Austrian naturalist Viktor Schaubberger, with the aid of concepts from modern research into chaotic and self-organizing systems. The focus of the report is on modelling. With the aid of concepts like self-organization, free and forced vortex flow, chaotic pulsation, mathematical bifurcations and minimal surfaces, and with flow images like “handkerchief dynamics” and “toroidal vortex flow”, we try to sketch a natural sciences perspective that comes close to Schaubberger’s.

We replicate the Stuttgart experiments with vortex generation and particle separation, and give an overview of existing research in the area.

The report also covers applications such as oxygenation of water, e.g. in fish ponds, bathing facilities, and sewage plants, and particle separation, e.g. in laundry plants, the food industry, and paper-mill industry. Some perspectives are also given on restoration of natural waterways and minor lakes or bays.

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Part I

# IMPLOSION

VIKTOR SCHAUBERGER  
and the  
PATH of NATURAL ENERGY

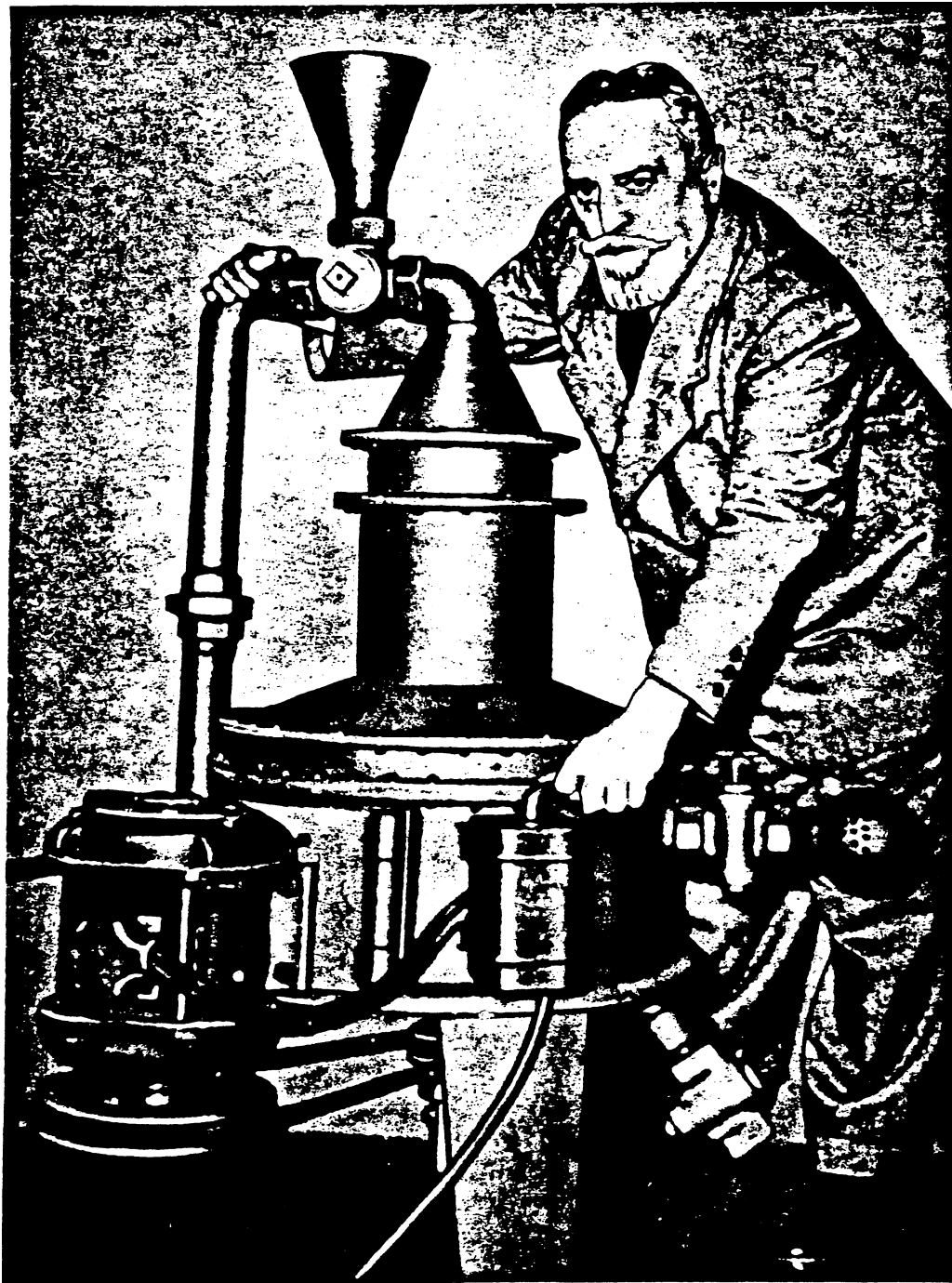
Compiled by Riley Hansard Crabb

& Thomas Maxwell Thompson

1985 Revised Edition of Implosion Instead of Explosion

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Viktor Schauberger with his experimental home power unit  
in October 1955.

## IMPLOSION INSTEAD OF EXPLOSION

Viktor Schauberger and his Discoveries

By Leopold Brandstatter

The Natural Solution to the Energy Problem Through Diamagnetism and Etheric Forces, Second Edition, 1955

### THE SIGNIFICANCE OF DIPOLARITY

It has been clearly and conclusively established already that technology in its various experimental and practical attempts to produce useful energy resorts only to pressure forces (water, steam, air or gas pressure) or that it makes either direct, or indirect use of the heat of combustion to produce expansion and explosion -- again pressure forces -- which it then converts to useful energy.

Thus we have established the fact that so far technology has only partly recognized the significance of Nature's polarity. Only after having explored the above mentioned deeper psychological factors do we begin to understand why it has seemed preferable to utilize the pressure component. This totally one-sided attitude in regard to the production of energy is responsible for the fact that the essential balance of the bipolar structure of the basic natural elements has been severely upset and all life on earth put in gravest danger of extinction.

All life has its secret in dipolarity. Without opposite poles there can be no attraction, and no repulsion. Without attraction and repulsion there can be no movement, and without the latter, no life. Light calls for darkness, because without darkness it would have no meaning. The alternation of warmth and cold, of day and night is also of greatest importance to our planet. While one side of the earth is cooling, its other side is getting warmer. These temperature differences produce a constant flux which results in a spiral rotation just as it happens with hot and cold air fronts whose meeting results in cyclones and hurricanes. There are even differences in the earth's weight, because on its warm side the weight increase is absolute and on the cold side specific. This, together with the magnetic forces, produces a declining rotational movement. The temperature differences exert a constant pressure which sets the masses in motion as it seeks compensation.

The counterpart of heat is cold; of the negative - positive;

of the masculine - feminine, etc.

#### ALL OPPOSITE POLES ARE ESSENTIAL TO NATURE

Opposites represent an integral part of nature's course which, in reality, does not describe a complete circle but a spiral. This observation, though of the greatest importance, has failed to attract the attention it deserves. All that lives (at this level of consciousness or being) moves between two opposites, between two poles -- hence dipolarity -- spiralling upwards toward enlightenment and purification, or downwards through deterioration and degeneration toward ruin. This depends on whether the driving force is centripetal (that is, concentric -- toward the center) or centrifugal (that is, excentric -- toward the outside). The excentric or centrifugal force leads to destruction, the concentric or centripetal force leads to growth and enrichment. This is equally true of material and of spiritual matters.

#### BALANCING NEGATIVE WITH POSITIVE

In the Tabula Smaragdina, the oldest of Arian Writs, we find the following significant words cut in the emerald: "Combine the heavenly with the earthly in accordance with the Laws of Nature, and health and happiness shall be yours as long as you live." Only the finest elements should be mated and blended if one wishes to obtain each time a finer and higher product. To mate, means to unite and to stimulate two opposites, the positive and the negative. The negative attracts the positive and the latter is drawn to the negative. Sunlight, which is positive, fertilizes the negative grain seed in the womb of the earth. A constant exchange of emissions between the positive atmosphere and the negative geosphere brings the seed to life. In this case it can be truly said: "She partly drew him down, he partly let himself sink." (Goethe: The Ballad of the Fisherman)

Union between the offspring of the earth and the descendants of the sun gives rise to life in the physical realm which is directed by the Etheric forces. The latter, on the other hand, have their own higher counterpart. The negative offspring of the earth capture the positive descendants of the sun and this produces a constant automatic movement. In the spring of the year, when the temperature and light conditions are relatively favorable, the positive rays of the sun (light) induce germination in the negative grains or seed. Therefore, to combine, means to stimulate and produce various gradients of potential. This in turn produces movement which is the very basis of life, so that everything is in constant flux (panta rhei).

Although the world is animated by a single universal force, this force can be divided into two contrasting elements -- the pressure component, and the suction component. In this case, Nature's dipolarity expresses itself in the form of two differ-

exit types of motion. Each of these types manifests itself through certain specific phenomena and represents one of the two components of the force which animates and activates the whole universe. The secret of the normal and good life consists of achieving the proper balance or blend of these two components. (see "Tabula Smaragdina". This is pure Cabala. All occult science, East and West, bases itself on this principle, Chokmah and Bina, Osiris and Isis, Orpheus and Eurydice. The whirling Hooked Cross, the Swastika, is the symbol. Revolving counter-clockwise, centrifugal, it is negative. Revolving clockwise, centripetal, it is positive.)

#### USE CENTRIPETENCE TO OVERCOME GRAVITY

The pressure component leads to Centrifugence, friction, increased heat and gravitation; while the suction component leads to Centripetence, cooling, absence of friction and levitation -- which makes it possible to overcome gravity. While friction may produce even white heat, fire. Centripetence produces a temperature drop which may reach what is known as the State of Anomaly which, in the case of water, +4° Centigrade. However, this is possible only if one uses Schauburger's suction spiral, a device which, on the whole, is still unknown.

Each living entity has its specific and characteristic point of Anomaly. This should be understood as the temperature or fever-less condition, that is, the optimum degree of warmth required by its species to develop and proliferate.

Until now technology has recognized only one type of motion, the type which raises the temperature through friction and pressure. Even ancient tribes knew that fire could be produced by rubbing together wood or stones; but it took Viktor Schauburger to discover a new type of motion producing not heat, but a temperature drop, reaching at times the point of Anomaly. This can be accomplished by tightly winding or coiling either air or water through a spiral curved channel of special design.

In this process the medium -- air or water -- is drawn almost without friction toward a central point, condensed in a special manner and at the same time cooled. A biological vacuum (negative pressure) is created which, on its part, augments the suction acting on air or water. Until now this possibility has been overlooked in technology, and yet it offers totally new perspectives in regard to energy production. Friction creates in a machine conditions comparable to fever, conditions which cannot be normal, since they tax materials excessively and burn them out.

People and animals do not develop fever because of work. They may get hot but their blood temperature remains relatively constant. Normal conditions in machinery can be achieved by or through implosion and impansion with the best possible results in regard to the preservation of materials. It would seem ob-

vious that man's duty is not to waste and squander as quickly as he can the resources of the earth, but to preserve and conserve them. Machinery design, therefore, should avoid all material waste and should ensure at the same time durability. Our unscrupulous modern technology and economy, unfortunately, have been moving in the opposite direction.

#### THERE ARE TWO WAYS TO GO

The two types of motion which nature employs give rise to the following phenomena:

- (a) "Centrifugence" - resistance to friction  
pressure  
temperature rise  
biological deterioration
- (b) "Centripetence" - absence of friction  
suction  
temperature drop  
biological improvement

"Centrifugence", which is a scattering of force, is slowed down by natural causes, because the resistance it encounters grows as the square of its velocity, following the well known formula  $W=MV^2$ . Were it not for this fact, matter would risk being destroyed, or would be in danger of being broken up into atoms. The opposite is true of "Centripetence". Its effective force undergoes no deceleration, since there is virtually no friction, and grows, instead, as the square of its velocity. Centripetence contracts, conserves, condenses and therefore benefits life. It attracts and absorbs without producing pressure.

It is obvious therefore that as a result of the natural laws the effective power of centrifugal motion is never as great as that of centripetal motion, the first being destructive, the second constructive. Were the destructive force more powerful than the constructive force the universe would not exist. (The Christ is Centripetence. The Anti-Christ is Centrifugence.) Unfortunately our whole technology has committed the error of choosing the destructive force as a means to its own ends, and this tragic choice of the mode of propulsion and motivation, having completely disrupted the ratios and balance of nature, has brought it to a blind alley. Instead of applying by preference, as nature does, centripetence which permits producing energy almost at no cost, it has done the opposite. This has resulted in an over consumption of raw materials, in an explosion and exploitation of natural resources, until now the very destruction of atoms has been reached.

Centrifugence increases pressure and heat. Centripetence has a cooling effect and generates condensing reactive forces. It never cools beyond the point of anomaly. We know that while moderate chilling and moderate cold conserves, refreshes and pre-



serves, rising temperatures lead to heat, putrefaction and combustion.

#### THE CABALISTIC PRINCIPLE OF BALANCE

In order to subsist, life must have both heat and cold. Exposure to excessive heat and light produces cancer in organic tissues (but living organic tissues); in dead organic tissues it produces rapid putrefaction and decay. Cold, on the other hand, preserves, consolidates and arrests disintegration. For this reason, food can be preserved only by applying cold. With the temperature at +4° C. Thus cold is as important to life as warmth. Man must strike the golden mean between the two in order to realize the best conditions for his development and propagation.

All mechanical movement is the outcome of attraction and repulsion. However, the dominant factor regulating motion is not the pressure component, as assumed by our whole fire technology of steam pressure, hydraulics, electrical power, gas pressure, atomic fission, etc., but the suction component. So far, however, this component has been completely neglected by our technology and overlooked in mechanics. The tragic end of our civilization and culture is therefore inevitable, unless the new type of energy which can be produced by means of suction can be utilized in the form of implosion and impansion for industrial purposes.

At its second and higher phases, Centripetence generates magnetic forces, namely what is known as diamagnetism -- a special type of vital energy lacking which no creature can survive.

As we see, there is one type of motion which determines a temperature rise, another which determines temperature drop. Now then, these systems of motion should be organized and adjusted in such a way as to have the constructive forces representing always over 50% of the total. When this ratio is exceeded, which of course should never be allowed to happen, synthesis becomes too rapid and there is maximum activation of the so-called etheric form of carbons, a maximum which equals approximately 94%, plus 4 to 6% condensed oxygen. Conversely, by destroying these products of synthesis one obtains a product containing only 4 to 5% high-grade substances and an excess of accumulated solar energy wastes, that is, complete peroxidation. (See also effects of radioactivity). A peroxidation of energy concentrates leads to a hyperacidity of the blood and lymph due to a deficiency of high-grade substances, then to cell damage, cell destruction and cancer.

Therefore, for the sake of his well-being, man should be careful not to resort to fire technology alone; that is, to that type of motion which produces friction and Centrifugence. In order to create for himself healthy, normal conditions, to get the best out of life -- or make his life better, he should ap-

ply rather the planetary type of motion which is not Centrifugal, excentric, but primarily Centripetal, that is, concentric.

In nature there is definitely no such thing as homogeneous motion. The predominantly Centripetal type of motion which produces diamagnetic levitation is based exclusively on the spiral. Only this motion permits the planets to orbit freely around the sun following their predetermined paths. This could not be the result of gravitation alone, but also of their own powers of levitation. Only the proper balance between gravitation and levitation, between the attractive and the pressure forces makes it possible for the individual planets and the various solar systems to move along their courses, as parts of Spiral Nebulae.

#### THE SIGNIFICANCE OF THE SPIRAL

Without the Spiral there can be no levitation. This represents the opposite of gravitation -- an observation which has yet to be made by orthodox science. All we know about levitation -- that is, the art of overcoming gravity -- has come down to us only through the Secret Teachings (for instance the Whirling Dervishes of the Middle East). The geometrical spiral is the basis of all planetary movement. It represents the motion which is employed by nature as a means of ascent and purification. In 1919 it was found by Viktor Schauberger that the spiral can be adapted to technical uses in the form of a suction impeller. Today only its opposite, the pressure impeller, is being used; while the suction impeller is still unknown.

Centripetal motion, in contrast to Centrifugal motion, is not circular but spiral. All that moves in a circle remains in one place both spatially and biologically and becomes arrested in its development. That which is arrested in its development is forced to regress. There is no standstill in nature; in the universe there is only advance and retreat.

Technologists are still quite unaware that the only path to growth and rise is the spiral. The consequences of this seemingly harmless oversight are nevertheless catastrophic. Centrifugence produces friction and friction produces fire. It eliminates water and robs the soil of its fertility. The soil, only temporarily stimulated by artificial fertilizers, is hastened in its truly cancerous process and becomes gradually barren. One of the economic consequences of this oversight is the looting of natural resources and their total depletion, which brings about political unrest, wars, increasing spiritual and sexual impotence, degeneracy and finally the end of culture and civilization.

"The spiral represents an upward path" (Infinity 1/10). Nature requires a type of motion which is primarily planetary, spiral, because this type heats neither the water, or as the case may be, the air serving as the medium of motion, nor the implosion motor -- the design of which must embody the system

of spiral curves presented by the original model - but which cools them instead to their natural point of anomaly.

This anomaly is the natural boundary line between the positive atmosphere and the negative geosphere with their different potentials. This explains nature's constant unrest. Optimum conditions for life are found within this boundary zone which, in humans and animals, is the normal blood temperature. Motors, too, have a certain atmospheric state of anomaly in which they function best or, as in the case of our current engines, in which their pressure and performance reach the highest peak.

#### THE LIFE BLOOD OF THE EARTH

When water, the life blood of the earth, is centrifuged or exposed to excessive, unfiltered solar radiation, its temperature rises. It develops a "fever", due to the decentralizing reactive forces which are generated in the process. This brings life to the harmful microorganisms which may be present in the water, since their growth is stimulated by higher temperatures. They begin to proliferate rapidly and deprive the physical primogeniture (water) of its vital energy, so that as soon as it has exceeded a certain temperature - this limit begins already at +9° Centigrade - it becomes lifeless and dies for lack of high-grade elements, becoming more and more shallow and unpalatable.

However, if we restore in this congenitally diseased, "cancerous" water its original, that is, primarily planetary, radio-axial movement by means of special vessels and devices, its temperature falls and the pathogenic bacteria die in the absence of temperature which allows them to proliferate. This does not mean, however, that cooling with ice or by other artificial means will restore the original properties of water which has been heated. This can be achieved only by using spiral geometric curves capable of restoring the water's diamagnetism and of regenerating its etheric forces.

Water deteriorates when its temperature exceeds a certain limit, whether due to overheating and overexposure to light, or to the action of compressor turbines, water wheels, pressure pumps, etc., whereupon such valuable fish as trout, salmon, etc., can no longer breed. During the spawning season these species, as we know, have to migrate upstream toward the head of the river, where the water temperature is +4° C, since their young, lacking the necessary adaptability, can develop only at this temperature.

This is also the reason why the spiral should be used for technical purposes, releasing and making available unsuspected supplies of power. This however, can be accomplished not through explosion - the spiral cannot be used in internal combustion engines - but through impansion and implosion; not through destruction but through consolidation, synthesis and purification.

Today, preference is given in general to a type of motion

which is centrifugal, thus excentric, resulting in high energy losses and being responsible for the criminally wasteful exploitation of natural raw materials, seeing that it wastes far more than it produces. This is a type of motion which represents in nature a cancerogenic factor.

Unfortunately, it has not occurred to science so far that Centripetence permits achieving the very opposite of what is produced by Centrifugence. Nature knows how to protect herself from all danger. It is quite helpless only when it faces such totally destructive devices as atomic bombs. Even Centrifugence is destructive because of heat and the decentralizing reflected radiations it produces. The opposite is true of Centripetence or the spiral movement.

#### ELIMINATION OF COSTLY FUELS AND NUCLEAR FISSION

This fact proves not only that truly unbelievable supplies of energy can be mobilized, but also that this can be done almost without expenditure, since the method requires neither costly fuels nor nuclear fission; and only a small amount of water or air, which is refined in the process. The pull of the suction spiral can yield any required amount of energy. Remembering that during hurricanes and cyclones the same suction forces are at work and that they lift easily tons of sea water, whole buildings, or even railroad trains which fall into their paths, one can imagine what could be achieved were it possible to produce them by mechanical means. A great visionary and inventor has been able to find the answer to this spendid riddle by submitting nature to a careful and close scrutiny.

In this case however, the difficulty was not how to discover the mysterious and resistance-less suction forces, but how to design the proper tubes, since ordinary round tubes cannot be used. It meant finding a tube design which would make it possible to control these forces. Viktor Schauberger was fortunate enough to wrest also this secret from nature, but for the time being it cannot be discussed due to the status of the patent rights. Truly careful observation can help solve even the most difficult problems.

Those still hampered by obsolete physical and technical concepts find it hard to understand such natural laws, because they are still firmly convinced that a motor must be supplied at one end with 100% energy in the form of coal, oil, water or the like, in order to deliver at the other 10 to 30% effective power. With Implosion this ratio is reversed! The temperature gradient can be utilized almost 100% since there are virtually no friction losses. In the case of the Implosion, an impulse starts the suction spiral, whereupon the whole turbine begins to breathe like a living organism; or, when water is used, to act like an arterial or venous circulatory system. It produces at the same time a biological vacuum and continues to function until the supply

of energy which is stored in the material, that is, in the moving medium, has been used up.

#### FRICITION-LESS AND HEAT-LESS POWER

This amazing and hitherto unknown phenomenon can be explained by a friction-less movement of medium structures. This is exactly how nature solves the problem of friction-less and heat-less speed increases. The answer to this problem is a basic requirement in the production of power. Its cost is negligible, but it can produce the desired results only when the artificially accelerated flowing medium enters an advancing vortex whose suction force increases as the flowing medium gradually undergoes mechanical and specific condensation while being tightly coiled. A molecular suction point is formed on its own axis. This point draws the rapidly flowing medium from the walls toward the center, twisting it into a spiral which can be imagined as a screw within a screw. This prevents friction and reduces the temperature. Exactly the reverse is being done at present. As a result of Centrifugence, friction and resistance are increased; increased pressures lead to power losses and increased heat, all of which expresses itself in the form of excentric reactive forces which inhibit the synthesis of high-grade elements. As we can see, an inevitable inhibiting atomic force is generated. This force which grows as the square of the velocity, represents nature's emergency brake. This would have been learned long ago, if nature had been observed with care.

A continuous movement produced by rotation is not the same as rotation produced by means of pressure. It does make a difference whether concentrates of basic materials contained in a moving medium are drawn, or compressed. Through intentional or unintentional pull and suction one can generate water spontaneously, while through pressure one can produce only fire. This is why in its processes of synthesis nature employs only the spiral motion, inasmuch as only the latter leads to healthy growth and development.

#### IMPANSION AND IMPLOSION ARE UNKNOWN

Impansion and Implosion are two terms which can be found in no dictionary, since they are still practically unknown. According to Viktor Schauburger, they are the opposite of expansion and explosion. While a gradual or sudden dilation leads to expansion and explosion, a gradual or sudden contraction or concentration of liquid or gaseous bodies, air, produces a negative pressure, and through the latter, impansion and implosion.

As a matter of fact, the production -of energy requires a temperature gradient, either an upward gradient resulting from heat and pressure, or a downward gradient, resulting from cooling and suction - negative pressure. However, in natural processes it does make a difference whether the temperature is raised or lowered. A rise in temperature leads to expansion and explosion. Furthermore, the quicker this temperature rise, the greater the attending energy losses, inasmuch as they grow in proportion to the speed

at which the energy rise takes place. The highest natural resistance forces are encountered in the case of the H-bomb explosions, when the heat released reaches up to a 100 million degrees Centigrade. After explosion, nature reduces this monstrous heat by applying suction forces. Suction always produces a natural temperature drop and acts like a brake on the pressure wave generated by the explosion, which would otherwise destroy the earth.

Therefore, an energy production method based on an upward temperature gradient, is the worst possible energy waste and a destructive process. The quicker the medium -- air, or water -- is cooled (this takes but a few seconds when the spiral rotates very rapidly), the greater the energy effect, since the frictionless contraction instead of meeting with increasing resistance, meets with lessening resistance. Not only water but also air are instantly cooled to their respective points of anomaly. And so we are forced to conclude that the stronger the pressure, the higher the energy losses; while on the other hand, the stronger the suction pull, the higher the energy output.

#### THE COLLAPSING EFFECT OF SUCTION

The impansion and implosion-producing temperature gradient shows various and hitherto unrealized aspects:

1. Suction is more powerful than pressure. Whereas pressure elicits resistance, suction results in general collapse attended by no resistance. Introversion is likewise more effective than extroversion, and represents the only possible means of physical and of spiritual ascent.
2. Suction, even when its graduation is not controlled, is more effective than explosive pressure. Therefore, when mechanically produced, it must be carefully adjusted and regulated according to certain definite rules. Its intensification, quite obviously, must be allowed to take place within a predetermined period of time and must be fully controlled.
3. Suction can cool even to the point of anomaly; when properly controlled it preserves and saves materials; it permits the effective energy output to attain its natural optimum level and its maximum development within the allotted cosmic time-span.

However, the mechanically produced temperature drop can reach anomaly (the geospherical and atmospherical zone of neutrality) only if the suction spiral is employed. The spiral concentrates and contracts. This contraction cools, and the cooling process creates a vacuum. The vacuum, again, has a sucking effect and as the spiral revolves faster and faster, the whole process generates a diamagnetic force which is merely a manifestation of the Etheric life-force without which there can be no life on earth.

## VORTEX POWER EQUAL TO NUCLEAR POWER

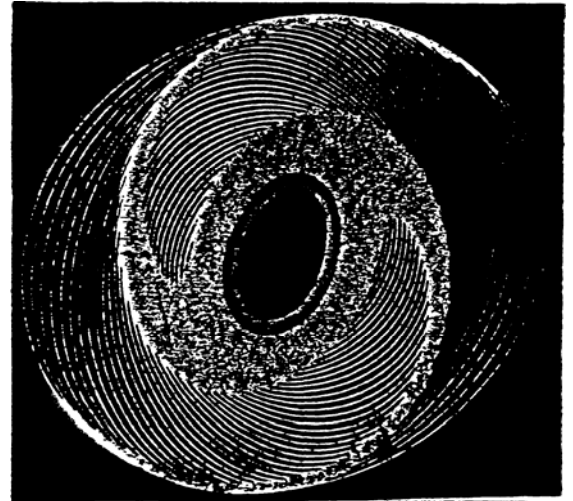
Only a spiral contraction of the moving medium can produce a diamagnetic vacuum which leaves in its wake resistanceless suction. The higher the rate of flow the stronger the suction pull; which, as the flowing medium strikes certain nozzles produces an implosion. Those forces, which can be produced by rotation in a system of spiral geometric curves, are as powerful as nuclear forces.

The significant role of spiral motion in natural processes is demonstrated by whirlwinds, cyclones, typhoons, water spouts, and finally by the whirlpools which occur in water. When cold and warm air masses meet over an ocean at a tangent, the resulting temperature drop and liberation of heat, plus the rotation of the earth, produce cyclones and hurricanes. Due to the rotation of the earth, winds flowing toward a low pressure area do not move in a straight line, but along a spiral. The strong effect of the earth's rotation on cyclones is demonstrated by the fact that south of the Equator they turn clockwise, while north of the Equator they turn counter-clockwise. Windspouts are a natural proof that a temperature drop is capable of releasing enormous energies.

In rivers, whirlpools are formed when the flowing masses of water encounter, and are deflected by, tear-drop shaped or egg-shaped stones of special composition, lying at the bottom of the river bed. The larger these stones and the greater the volume of water they deflect, the greater the temperature drop that is produced, and the larger the whirlpool that is formed.

Near Grein, Austria many boats and rafts used to perish in the waters of the Danube on account of such whirlpools. Many navigators tried to guide their row-boats through the eddies, but their offerings and prayers did not help and innumerable boats were lost because they did not have the power to pull out of the vortices. Finally, a simple man had the idea to break up the rocks lying on the floor of the river, rocks which had the shape of tear-drops, and which were responsible for the dangerous eddies. As soon as this had been done, the whirlpools disappeared almost completely.

It was proved conclusively already twenty years ago by Viktor Schauberger to the famous hydrologist Prof. Forcheimer that when a stream of water is deflected tangentially by a stone of a certain shape and composition, and no larger than a child's head, the temperature of the water drops by  $0.1$  to  $0.5^{\circ}$  C. Such a temperature drop can reduce the temperature of one cubic liter of water  $0.1^{\circ}$  C. and is equivalent of  $42.7$  mkg effective power. The same is true of a temperature increase. In summer, to raise





the temperature of a river such as the Danube (delivery about 800 cubic meters/second), for example, to 20° C. bathing temperature, it takes about 60 million PS or 45 million KW. This energy is freely supplied by the sun. We know that as it is being heated the water loses much of its natural properties, becoming first undrinkable, then dead, and finally putrid. In contrast, cooling to the point of anomaly +4° Centigrade, by imparting to it a spiral motion, restores its original properties, so it becomes once more like fine spring water. It is true that cyclones and hurricanes cause great damage due to the fact that they cannot be controlled. However, they are rare phenomena and their effects weigh less in the balance than those of fire, which in the form of lightning, storms and concomitant phenomena, is known in all parts of the earth, even where cyclones are never seen.

#### LIGHTNING, THE NATURAL PURIFYING AGENT

Of course, there is some value even to lightning which is a natural purifying agent cleansing the atmosphere by fire, freeing it of elements not yet ready for a higher developmental form which may have reached it due to excessive light and heat. The explosion of a storm precipitates these substances and produces an atmospheric discharge. Unfortunately it cannot eliminate radio-activity (from atomic fall-out).

The return of the positively charged substances from the atmosphere to the earth leads, due to the planetary motion of the earth, to a polarity change, so that these substances are able to begin once more their physical ascent. The same happens in the spiritual realms. All that has not been sufficiently purified must return and go through the process of purification once more.

In nature this process of regression takes place normally, without disturbances, through expansion. (The symbol for this is the Swastika, or hooked cross, revolving counter-clockwise.) The latter should be understood as a slow dilation, produced by light and warmth, which gives rise to mild electrolytic processes which separate or dissociate the higher from the lower elements.

#### THE SIGNIFICANCE OF DIAMAGNETISM

The same diamagnetic vacuum which can be artificially created by impansion and implosion, can be found in the human chest, as accidentally discovered in 1908 by Prof. Sauerbruch who, nevertheless, could not know at that time that this diamagnetic phenomenon occurs not only in the human thorax, but in all living beings and even in the earth itself. (The symbol for this is the -hooked cross revolving clockwise.)

Diamagnetism is generated when such a medium as air, water, or earth (necessarily containing dipolar trace elements) is forced to move primarily in a radio-axial, that is, spiral and centri-

petal manner, thus exactly like the earth.

Due to this totally unknown, yet primary method of synthesis, our planet is able to overcome gravitation, thus to levitate, to float in space and to move independently, condensing and refining its masses. Conversely, when the same medium is forced to move in the opposite manner, i.e., axio-radially (being centrifuged), its movement generates an atomic hyperpressure, a dilating and rarifying heat which inhibits the absorption and resorption of superfluous elements, and so prevents the natural respiratory processes.

The rotation of the earth generates a diamagnetic force also in water. It enables, for example, the rainbow trout to remain almost stationary and motionless in the midst of a rushing stream, or to flee in case of danger with lightning speed, or – during the spawning season -- to move upstream by rising through the center of the cycloidal swirling magnetic axis of the water falls.

Let it be added that diamagnetism, although discovered by Faraday already in 1845, so far has found no practical application, because it represents a type of magnetism which cannot be adapted to fire technology, inasmuch as it checks excessive temperature increases and consequently prevents ignition in motors.

#### DIAMAGNETIC OR PARAMAGNETIC, THERE IS A DIFFERENCE

On the basis of certain personal significant observations, Faraday classified metals as paramagnetic and diamagnetic. The so-called magnetic – or better -- paramagnetic metals are attracted by the magnet and show an axial arrangement; while the diamagnetic metals are repelled by the magnet and present an equatorial arrangement. It was found that the paramagnetic group contains not only iron, nickel and cobalt (whose magnetic properties have long been familiar), but also manganese, chromium, cerium, titanium, palladium, platinum, osmium, and almost all ferrous alloys. The diamagnetic group contains in the first place bismuth, then antimony, zinc, lead, copper, silver and gold.

For example, if a small bismuth rod suspended from a thread of raw silk is placed between the two poles of a very powerful electromagnet and made to swing horizontally, it is repelled by both poles. Therefore it positions itself at right angles (equatorially) to a line connecting the two poles; whereas an iron rod assumes an axial (normal) position to this line (NS).

On the strength of this behavior, all bodies can be classified either as paramagnetic or diamagnetic. It was discovered, furthermore, that glass, carbon disulphide, and other non-conductors are also highly diamagnetic. Each diamagnetic body, moreover, has a negative magnetic number, i.e., a number which gives the measure of its magnetic response.

Another interesting phenomenon is observed when liquids are

magnetically tested. The liquids to be tested are put into thin-walled glass test tubes (or watch glasses) and placed near a powerful electromagnet whose poles are set very close together. In the case of magnetic liquids the contents of the test tube rise over the edges of the latter and gather together forming a little mound on the sides next to the poles. In the case of diamagnetic liquids, the samples in the test tubes expand axially, and contract equatorially, forming in the middle not a ridge, but a valley running equatorially to the two poles.

#### HOW TO GENERATE DIAMAGNETIC FORCES

In Viktor Schauberger's discoveries diamagnetism is a crucial factor, or rather a factor which changes the whole picture and brings it into relief. Schauberger found that when air, earth, or water is agitated and coiled (with light, heat and air excluded) radio-axially, i.e., from outside inwards, diamagnetic forces are generated.

Our present technology, which fails to recognize this type of motion, has been unable to produce diamagnetism, or to adapt it to practical purposes. It has applied, hitherto, only paramagnetic forces and Centrifugence, disturbing thereby the vital processes of synthesis.

As already stated, centripetal contraction produces a temperature drop which creates a vacuum. Not only the temperature drop but also the resulting vacuum can be measured, with a manometer. The temperature drop in question proceeds more rapidly or less, depending on the rate of speed of the swirling medium, and may reach anomaly. This process produces a specific condensation and volume decrease manifesting itself in the first stage in the form of an in-drawing suction. In the second stage this suction produces in a hermetically enclosed space a biological vacuum which generates in the third stage the above mentioned type of magnetism which, in its turn, produces at the terminal end an implosion force which is the primary, all-animating, original atomic energy.

The present model of the atom, which is so familiar by now, is far from being the ultimate representation of matter. Even the lightest atoms are composed of a number of pulsating primary atoms. These are either positive or negative, either masculine or feminine, due to which they pulsate like spiralling microcosmic levro- or dextro-rotary hearts. Without diamagnetism --this extremely subtle type of etheric force -- there can be no procreation and no progress, whether in the plant, the animal or the human kingdom. There can be no growth, no proliferation and no perfecting of the naturally multiplying generations.

Diamagnetism actually is a vital force, an atomic energy which is already etheric. which builds and sustains physical life in all its aspects. It has been stated by Profs. Warburg

and Domagk that this cell building type of synthesis or vital force is possible only when the cells are supplied by the blood with sufficient oxygen, or Prana as it is more accurately called by the Hindoos, oxygen being only the coarser carrier of this far more subtle etheric force. This etheric energy is absorbed primarily by the various species of conifers and evergreens, which store it in the tips of their needles. This explains why there is always an excess, not a deficiency, of oxygen in forests; these natural water reservoirs and air filtering plants store vital energy and dispense it to mankind. Oxygen deficiency, let us add, lends to the development of cancer cells and its effects can be eliminated only by supplying purified oxygen.

#### TOO MUCH OXYGEN IS DANGEROUS

There is a vast difference however, whether this oxygen is freely inhaled (as air) or forced into the lungs (as pure oxygen). Due to the vacuum in his chest, man is forced to inhale; but for example, a child given too much chemically pure oxygen from a cylinder may have blindness as a result, while an adult develops almost fatal pneumonia. It is generally known that even ordinary atmospheric oxygen produces blood decomposition when it is introduced by a hypodermic needle into the veins, because once in the blood it becomes aggressive, binds the blood albumen which has an opposite charge and has been weakened by disease, changing the metabolism in such a manner that instead of life-giving forces, atomic destructive energies are set into motion. These destructive energies which have predominantly an expanding and explosive effect, attack the structure of the cells, drastically extend their nuclei, and finally rupture them. A similar process takes place in the atomic reactor when pure carbon (graphite) is bombarded with unscreened cathode rays which produce a radiation rate so high it is almost imperceptible, and therefore potentially very dangerous.

Now then, when an organism that has been attacked by cancer is supplied with diamagnetically charged, high grade water containing up to 90% energized hydro-carbons (and correspondingly less used up oxygen) the negatively charged diamagnetic reduction elements bind and emulsify the excess oxygen and inactivate it by cooling it. As a result, the fever recedes and that, which Prof. Warburg calls the Vital Force, is restored. It concentrates in new cells, forcing them to proliferate steadily, arrests the development of the adjoining cancerous cells, and finally destroys them. Cancer, which is the result of fire (i.e., over heating and combustion) can be cured only by diamagnetic negatively charged high grade water, as established already in 1935. But although the production of such water would have benefitted millions of people, opposition supported by the medical authorities prevented the construction of water purification plants. Moreover, the first models of the equipment were destroyed during

the war, so it has become possible to start collecting necessary data on the production of diamagnetic power by means of mechanical devices only recently, all such work having been stopped by the war and the ten years of Austria's military occupation.

Today we know at least that we are dealing with basic processes employed by Nature herself, that catalysts play in them an important role; and, naturally, that only those substances and materials can be used which are diamagnetic carriers.

Contrary to the concepts which hitherto have been considered in physics as valid, magnetism is not a quiescent field of force, but energy in flux. This was demonstrated long ago by the Viennese scientist, Felix Ehrenhaft. Ions can have a magnetic as well as an electric charge. The whole earth is permeated by spiralling centripetal magnetic currents. Spiral motion is especially typical of magnetism and constitutes the very basis of planetary motion and of all movement in the universe.

#### DIAMAGNETISM AND BREATH

Respiration binds elements belonging to the atmosphere with those belonging to the geosphere. In other words, it blends and emulsifies substances which have been purified by the diffusion apparatus (filter) with substances which have been filtered through the hermetically sealed blood and lymph systems. The emulsified product of this reductive blending process is represented in the crust of the earth by its physical primogeniture (tellurian waters), while in such higher life forms as plants, animals and humans, by sap or blood. Since neither blood nor sap can circulate without diamagnetism, and since there can be no diamagnetism without the spiral motion, it is obvious why blood and sap do not move in a circle, but in cycloidal curves, coiling again the diffuse excess elements and combining them intimately in the presence of suitable catalysts (catalysts which Goethe used to call "connecting energy fields").

We are dealing in this case with extremely subtle rays which are released and activated when differently charged precious metals in infinitely fine dispersion are undergoing concentration due to the centripetal movement of the blood or sap, and which in their turn bring together oxygen and the excess products of digestion which have reached the blood, or sap, stream through the intestinal filter.

This, however, is possible only when the median structures enclosing bipolarity charged sediments, which are just waiting for a natural triggering factor, are set in radioaxial motion and begin to unfold producing a diamagnetic vacuum. This diamagnetic vacuum is an atomic suction force which absorbs and draws in the oxygen from the ambient air. This oxygen, on the other hand, has to pass through certain filters, the skin, the rind, or bark, to absorb only the finest elements. Were it not so, the concentric pressure of the air would force in also less valuable elements.

Diamagnetic respiration is the opposite of atmospheric pressure, inasmuch as it draws in only excess diffuse oxygen, prana. This diamagnetic force is also behind the power of levitation which maintains the earth in a state of labile equilibrium and forces it to revolve around its own axis (called, in general, the magnetic axis). This diamagnetic force which acts axially in all directions, allows the earth to levitate spontaneously.

#### THE ALL-PERVADING FIFTH ELEMENT, AETHER

Diamagnetism is an emanation, or stream, of the universal ether (the fifth of the known basic elements, the other four being Fire, Earth, Air and Water, and their symbol, again, is the Swastika or Hooked Cross. The fifth element is the point or center on which the other four pivot). It produces constant suction whose surplus energy spirals upwards in a steady flow resulting in and endless inhalatory and exhalatory process, a process which can be mechanically reproduced.

Examples of Hooked Crosses, from the Rosicrucian "Manual":



Modern motors generate waves, and these waves impart a centrifugal or radioaxial movement to the surrounding masses of matter. The friction attending this process generates first heat, then fire. This is the end result of a reverse process of elementary compensation, because fire is an agent of combustion and therefore acts exactly like the pathogenic bacteria which are nature's purifying agents whose task it is to carry out the degenerative and destructive processes that protect life as a whole. When they are unable to perform this function, they must be aided by fire and burning. This is Nature's way. However, it is catastrophic when man makes use of these destructive powers in building culture and civilization while at the same time furthering the proliferation of pathogenic bacteria in the waters by poisoning, overheating and sterilizing the latter, either by such mechanical means as compressor turbines, or by destroying the growth that protects the banks and shores.

The various types of machinery being used at present -- centrifugal motors, propellers, agricultural machinery, etc. -- are dangerous reactors. They release destructive atomic

forces whose effects grow in proportion to the speed of rotation. It is obvious that they destroy the diamagnetic axial force which absorbs and absorbs oxygen. They centrifuge the water and supply it with a constant stream of warm oxygen so that it asphyxiates and decomposes, all of which leads to the death of tellurian waters, of rivers and of seas.

#### TREES, SPRING WATER AND DIAMAGNETISM

It seems that until now few people have posed themselves the question why most springs are located high in the mountains and, furthermore, why only in wooded areas. (The latter is true even of springs situated in the lowlands.) It is an established fact that when a natural mountain spring is deprived of its tree covering and exposed to direct sunlight, it dries up and does not begin to flow again until after the protective shade has been restored. When permanently deprived of its natural shade, it either appears at another place, where adequate shade is available, or vanishes forever.

Some mountain springs disappear never to return after having been exposed even to slightly stronger light for a longer period of time. It is also a fact that our supply of mountain water is shrinking as the protecting forests are being thinned and cut down. When the mountains are bare, rivers turn into thin trickles or dry up altogether, and when it rains they become raging torrents. With no trees to retain the waters, they rush into the valleys carrying destruction and silting up their estuaries with rocks and stones.

Thus, we are forced to reach the conclusion that when the forest dies, water dies too, and all life comes to an end, because without water there is no life.

The water of true mountain springs has a temperature of 4°C. just before coming to the surface. Under the influence of light this temperature rises very rapidly, because the positive charge of the atmosphere makes itself felt with lightning speed. When the effects of this positive charge are reinforced by those of direct light, rapid changes take place in the specific gravity of the flowing spring water. In other words, it becomes lifeless as it loses more and more of its diamagnetic powers of levitation.

#### THE LEVITATION OF CHARGED WATER

Diamagnetically charged water, blood, or sap can levitate. Water which is diamagnetically charged and enriched with carbonic acid refreshes and animates. Those who drink it feel better, healthier, despite its higher gravity.

Schauberger was moved by these observations to alter the polarity of water (or air) after it had been exposed to the action of the atmosphere and to make it negative once more by using a system of suction curves. The results he obtained were amazing. The water which had suddenly recovered its negative



charge (in the presence of certain catalysts, with light and other factors excluded) rose high in a carefully insulated stand pipe of special design and made of special alloys -- although the pressure was atmospheric -- while the volume of water in the tank remained unchanged.

#### QUANTITATIVE AND QUALITATIVE ANIMATED WATER

This is how Viktor Schaubberger discovered an artificial method of increasing water, as well as an answer to the question: What makes water, which has been negatively diamagnetically charged by the rotation of the earth, rise to the top of mountains, provided light has been excluded and there are trees giving it the necessary protective shade?

This discovery taught him how to create an artificial mountain spring and supplied him with proof that water influenced by the geosphere -- that is, animated water -- undergoes a quantitative increase and a qualitative improvement. In other words it grows and develops exactly like plants, animals or people when a soul is breathed into it.

Thus diamagnetism and levitation explain the mystery and origin of mountain springs. The planetary, spiral movement of the earth imparts to the tellurian waters under the surface of the earth a predominantly negative magnetic charge. The earth (geosphere) itself is also negatively diamagnetic, while the atmosphere is positively diamagnetic. Since opposite poles are attracted to each other, and like poles are repelled by each other, negatively charged water is repelled by the earth, i.e. it is lifted, while at the same time it is attracted by the atmosphere. Thus, pure water levitates and rises to the top of mountains, while predominantly positive water is repelled by the positive atmosphere and comes down to earth in the form of rain, to undergo its process of purification once more. When the earth happens to be also positively charged due to excessive sunlight, it can no longer attract rain, as in deserts.

Therefore an excess of light or fire is the enemy of water, and vice versa. It is left to man's reason to protect the mantle of vegetation covering the earth so as to preserve life. Under the present circumstances, however, this is not possible today because forests are being cut down all over the world. Steppes, sands and waste lands are advancing; even without atom bombing whole continents are heading toward destruction due to the exhaustion of their natural resources. They must sink to be reborn and emerge from the waters millions of years later. The eradication of the protecting and life-giving vegetation which mantles the earth is additionally hastened by radioactive peroxidation of the atmosphere.

Water loses its ability to ascend mountains when the soil is deprived of woods shading it from direct sunlight. Without this natural screen of trees, ground waters which are found at

the deepest levels in deserts and closest to the surface in forests, are forced to recede. Thus the death of forests means the death of water and of all life. This is something which could not be overemphasized, since many are still unaware of this fact.

#### THE REGENERATION OF DISEASED WATER

Schauberger's discoveries prove among others that water can be multiplied and improved by applying planetary motion and simply imitating nature's methods, and conversely that when water is ruined by centrifugation and such devices as compressor turbines, water wheels, etc., it becomes devitalized, loses its power of levitation, ceases to breathe, asphyxiates and -- with continued exposure to sunlight -- recedes and vanishes altogether. Of course, in the bosom of Mother Earth this diseased water is gathered up again and its polarity reversed, whereupon it is regenerated and ready to reappear as a fresh and bubbling mountain spring at a new place, where it still finds the protective shade of trees it requires.

Be that as it may, our supplies of fresh water are steadily shrinking. In various branches of industry water experts worry and desperately search for a solution to the water problem. This search is bound to be fruitless unless they turn to Schauburger's discoveries and replace the present fire technology with a biotechnology that will protect and benefit life.

The water and the energy problems can be solved simultaneously if magnetism is produced by mechanical means, and all attempts to produce atomic energy are abandoned.

People can learn only by trial and error. Perhaps the error we made in applying fire methods indiscriminately was necessary to make us realize how dangerous it is to reverse and alter the natural basic motion (the one indicated by Nature as our only means of development) and how wrong it is to employ combustion and other destructive processes to build a civilization. This explains the decadence of our culture. When people use only excentric or centrifugal forces for technical purposes they deteriorate both morally and spiritually.

To use nuclear energy produced by the explosion and fission of atoms is a fatal blunder and a crime against humanity and against the earth itself. Hence it is only natural that the branch of science which has conjured up these horrors has found itself in a blind alley from which there would be no escape were it not for the discovery of diamagnetism, this universal life force without which there can be no respiration and no life. Fortunately, it can be mechanically produced and used to give earth, air and water the chance to breathe again.

The most convincing and obvious proof that life is gradually perishing can be found in the streams and rivers of our industrial areas where water is already so polluted by industrial waste waters and sewers that it resembles drainage from a manure

pit. As a result our underground water and supplies of drinking water are gradually becoming unfit for human consumption. They are killing people, just as they have killed the fish which only a few years ago used to splash in them. Water chlorination is also harmful to the human organism. Today the Rhine and the Weser are Europe's most polluted rivers. Actually they are no longer rivers but streaming sewers, as stated by the German Minister of State, Dr. Seebolm.

#### WATER IS THE "BLOOD" OF THE EARTH

Healthy blood is the life carrier of the human organism. Pure water plays the same role in the economy of the earth. Thus the preservation of life requires that water be kept pure. But water can be pure and wholesome only when it is charged by a magnetic flux which not only stimulates the proliferation of apathogenic bacteria but also animates and regenerates it.

The general public is still oblivious to the seriousness of the water problem, although it is from this that disaster will come (even without atom bombs) in particular to our most developed areas. The water table is sinking, water is vanishing because its greatest enemy, but also its most important consumer – our fire technology – is poisoning it and burning it out. Our water economy, unaware of the true reasons, attributes its disappearance to a consumption exceeding the natural water supply. As a matter of fact, water consumption in industry and in homes is higher today than it was in the past.

But what causes these losses of underground waters? In the first place, deforestation and the exposure to strong light of regions which would be natural reservoirs had they not been ruined by the destruction of the geospherical diamagnetism. In the second place, the wrong and harmful methods by which rivers are being regulated. We have learned that it is a great mistake to grade river beds and to encase their banks in rigid stone walls. Viktor Schaubberger fought for years both these methods and the destruction of forests with equal passion. Now, that many of his predictions have come true, and when it is mostly too late to undo the harm done, these mistakes are being recognized; but nothing is being done to remedy their consequences. In all truth, the only effective measure would be to apply Schaubberger's discoveries.

#### THE SINUSOIDAL CURVE FOR CHARGED WATER

There is good reason why rivers wind and twist through valleys and plains. They are trying to preserve the primary form of the sinusoidal curve produced by the slightly declining planetary movement of the earth. The function of this curve is to create and maintain in rivers a diamagnetic axis which keeps their waters alive and pure and endows them with their carrying and towing capacity. When the meander is eliminated by regula-

tion and, furthermore, when the vegetation protecting the banks (willows, alders, etc.) is destroyed, the resulting damage is threefold. First, the magnetic axis is destroyed and the river's carrying, towing and cleansing properties are impaired. Secondly, with the shading vegetation gone and the resulting overexposure to sunlight, the oxygen content of the water is overheated, becomes aggressive and it escapes; the water evaporates, dries out and decomposes. Thirdly, the graded river bed carries off water very rapidly instead of keeping it in the soil. The floor of the river sinks deeper, and deeper causing the underground water to escape and the table to drop; it "bleeds the land to death".

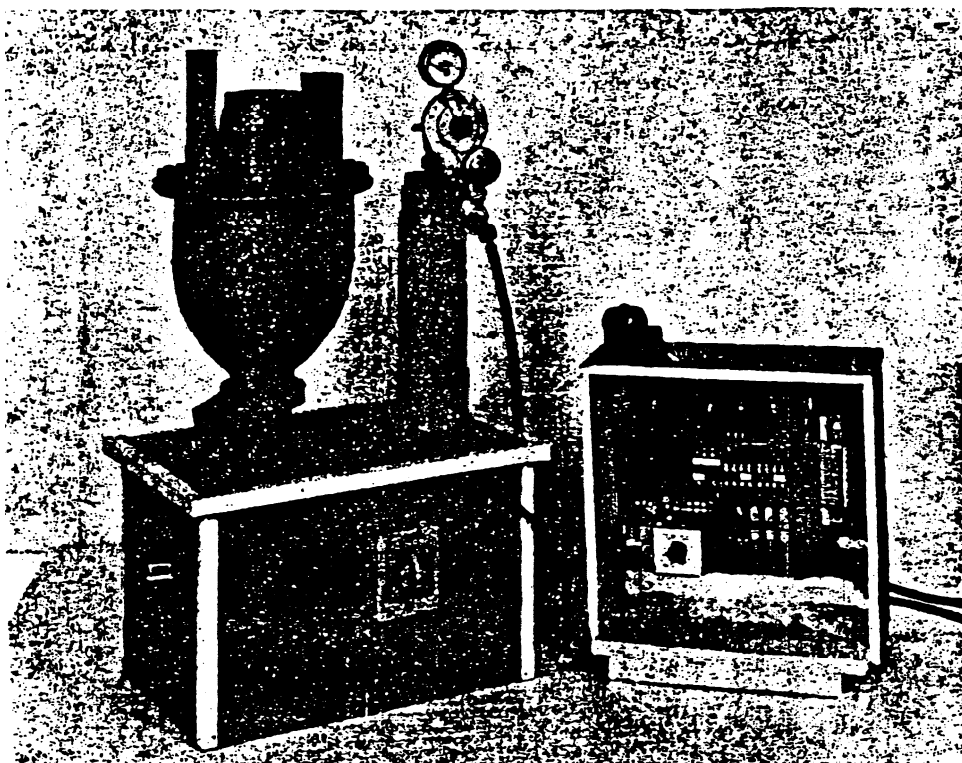
#### THE DECREASE IN FERTILITY OBVIOUS

The bed of the Rhine has already dropped one meter (and more in certain places) because it is graded and regulated -- something which Viktor Schaubberger tried to prevent in his days by installing suction spirals. The floor of the Danube between Ulm and Passau has been sinking at the rate of 1% cm. a year since its regulation. In the Bavarian part of Swabia the River Wertach has cut so deep into the subsoil since it was regulated that its floor is now lies as much as ten meters below the level of its banks. This shows that its water has lost its magnetic axis and its powers of magnetic levitation, its polarity having been changed to positive due to excessive insulation. As a further consequence it has cut through the adjoining horizons of underground water causing the latter to escape. This has reduced the fertility of the surrounding fields which are now threatening to change to a barren steppe.

The experts did not even guess until recently at the enormous importance of the diamagnetic properties of the earth and failed to realize that these properties were destroyed by the direct action of light or fire. The only thing that can keep the earth from becoming a desert, in order to protect the primary source of life, water, from death, is the art of multiplying and improving water.

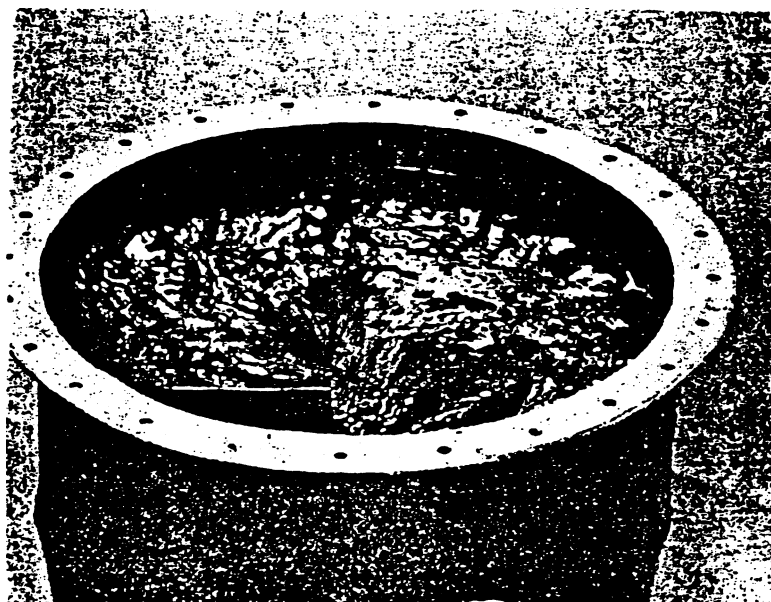
Today the main question is: What is more important for the immediate development of the earth, water or fire? We know only too well that, indirectly, fire makes it possible to activate machinery; but it is a completely new discovery that by artificially producing and increasing water we can obtain better and cheaper energy and that we can restore, besides, the vegetation whose growth has been affected by an excess of fire.

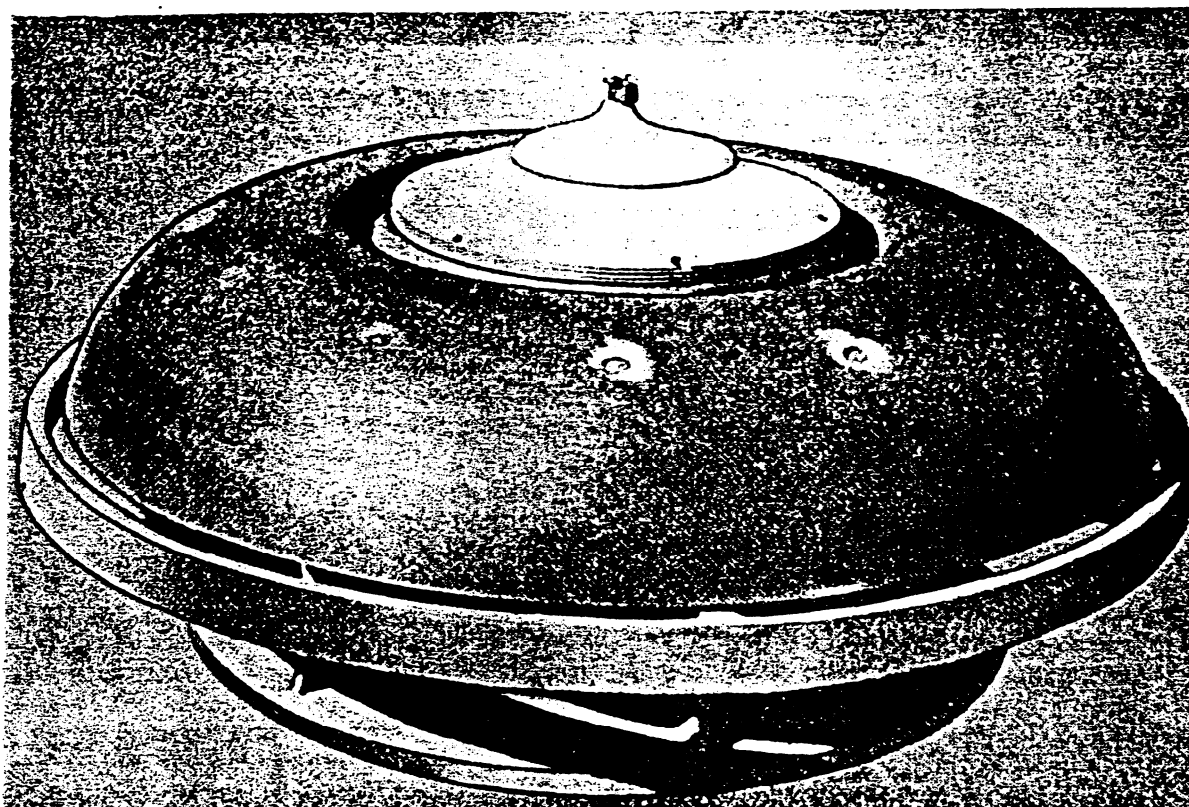
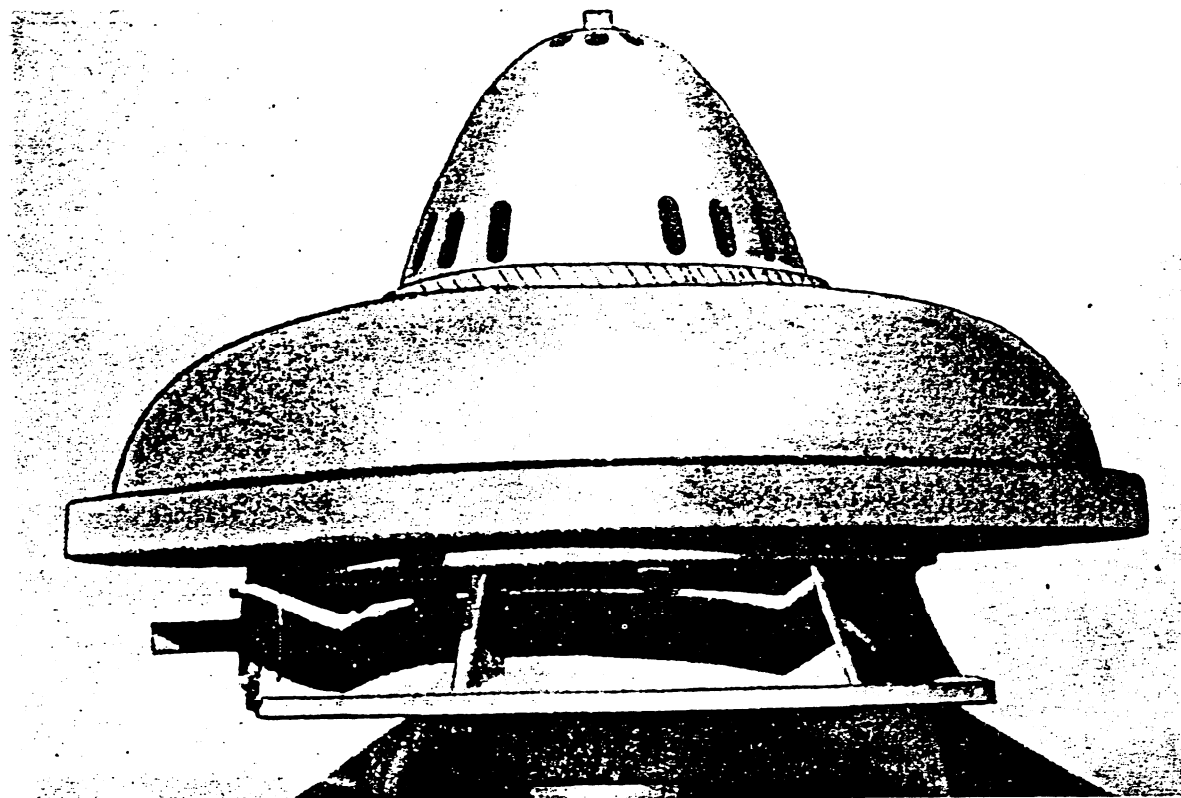
Thus, by changes in technology to Implosion, not only would it be possible to solve the energy problem, but also to achieve complete freedom from nutritional problems.



Water purifier

inside the water cleaner





SCHAUBERGER'S EXPERIMENTAL MODELS OF FLYING SAUCERS  
MADE FROM COPPER. BUILT IN 1940 BY KERTL CO. IN VIENNA.

IMPLOSION MOTOR, SUCTION TURBINE, HOME POWER PLANT  
FLYING DISCS (SAUCERS or UFOS)

An Implosion Motor is in every respect the opposite of an Explosion Motor. While the latter makes use of pressure forces produced by explosion, the implosion motor utilizes the suction forces of implosion. When pressure forces are applied, the particles they set in motion move away from the biological zero point, or zone of anomaly, being often heated until they are white-hot. A so-called heat barrier is produced by the resulting enormous friction resistance forces. One of the greatest problems in aircraft construction, for example, is how to overcome this barrier.

In the case of the implosion motor there is no - heat barrier and no sound barrier, because with friction almost entirely lacking, no heat is generated. On the contrary, due to the spiral contraction of the flowing medium there is cooling to anomaly, and this creates a vacuum which increases the suction pull. In this case the reactive power factor grows, because the medium which has been set in motion is radio-axially swirled almost without resistance while at the same time being mechanically and physically concentrated and correspondingly cooled. When nozzles 1 mm in "diameter are used, the flowing medium detaches itself - when its rotation reaches 1200 rpm -- from the walls of the spiral channel and its flow rate rises to approximately 1290 m/sec. This corresponds to nearly four times the speed of sound. The larger the diameter of the spiral rotor, the slower can be the rotation of the impulsions motor which starts the suction motor.

An impulsions motor can coil and tighten water in a system of suction tubes spirally arranged around a conical shell into a homogeneous suction head and shoot it out through a special nozzle built into the bottom. When this stream of water, which is like a steel wire tapering to a suction point, is intermittently interrupted by a shutoff valve of special construction and made of a special alloy, a reactive back-pressure force is generated which acts in the same direction as the implosion motor. The speed of this back pressure force corresponds to the previously mentioned outflow rate. It supplies the rotor shaft with some 17.9 HP/lit/sec. through each 1 mm nozzle (i.e., an out outlet cross-section of 0.79 sq. mm, as selected on the basis of mathematical calculations) which can be utilised as a reactive projecting or lifting force.

In the case of an implosion engine having a diameter of 1



meter, the lower surface of the suction rotor measuring slightly over 5 meters in circumference could easily accommodate 100 or more nozzles, each with 3 - 6 outlets. Assuming 600 outlets had been installed, and with the rotor turning at the rate of 1200 rpm, the lower rotor shaft could be supplied with some 10,740 HP in the form of a cyclone-like projecting or lifting force.

Such an energy output exceeds even the present possibilities of a nuclear engine. A group of engineers and scientists from the University of Utah have designed a 7,000 HP nuclear railroad locomotive.

#### THE MASSIVE PROBLEMS OF NUCLEAR POWER

The estimated cost of this locomotive \$1,200,000. The reactor will be 0.9 meters long, 0.6 m wide, and 0.9 m high. While it will be somewhat smaller than the above-mentioned implosion motor its capacity will be almost 4,000 HP lower. Furthermore, the nuclear reactor will have to be surrounded by a 200 ton screen to eliminate at least part of its deadly radioactive emissions. To install this giant nuclear locomotive on a single undercarriage would be impossible. It will require 12 supporting wheel axles and 24 wheels. Therefore it will be constructed as a dual unit having a total length of 48 meters.

The front part of the locomotive will house the reactor and motor. The trailer will carry ribbed, air-cooled heat exchanger tubes which will have to cool huge volumes of water of condensation. The basic cost of this locomotive will further be increased by the current costs of its nuclear fuel. It is estimated that these will reach \$200,000 a year with the locomotive in full operation.

The implosion motor presents none of these disadvantages, namely, the heavy; 1.2 m thick lead screen, the trailer with its watercooling installations, and' last but not least, the fuel costs, inasmuch as the implosion motor runs on a small quantity of water uninterruptedly, like a living organism, until the water has been used up and the temperature gradient is exhausted.

Therefore the installation of implosion engines opens the path to dazzling possibilities. Implosion motors can be employed not only in stationary machinery, but also in all types of vehicles, cars, aircraft, ships, etc. They can replace all and sundry known types of motors and power engines.

#### THE NON-POLLUTING IMPLOSION MOTOR

Implosion motors are less expensive to construct, require no costly propellants and, moreover, permit biological exploitation so they have a positive effect. While the present types of power machinery bring into play their centrifugal motion decentralizing reactive forces which lead to cancer, implosion motors produce by their centripetal motion condensing reaction forces and dia-

magnetism. In the first case we have, from the biological point of view, de-animating and regressive energies activated by back-pressure; in the second case, reactivated projecting and stimulating energies which result in biological improvement and growth.

Of course the mechanical production of diamagnetism requires exact measuring and control methods, because even the best medicine can be harmful when administered in excessive doses. The necessary data on the application of the constructive diamagnetic forces will have to be collected on the basis of practical findings.

#### OUR UNBEARABLE EXPLOSIVE POWER PLANTS

Still another and very important advantage of the implosion motor is that in operation it is both soundless and odorless; whereas, all combustion engines produce noise, smell, exhaust fumes and smoke, creating unbearable conditions when used in large numbers. Implosion motors on the other hand, run noiselessly, without smoke, exhaust fumes or smell. In nature planetary motion is soundless, crashing noises being the concomitant only of such destructive processes as storms.

It must be admitted that the design and construction of implosion motors presents great difficulties due to the fact that they imitate the prototype of life (not to mention a totally new technology which at the present time does not exist!). Their suction tubes must be arranged in a perfect spiral and therefore compasses cannot be used when working on their design. Also, they have no transmission shaft, while in all conventional power engines, which can produce energy only by means of circular, mostly centrifugal motion, the transmission shaft is an essential part. The type motion of a conventional engines represents, biologically speaking, a stationary spin, thus a backward motion, since in nature standstill is the equivalent of regression.

#### SUCTION TURBINES AND HOME POWER PLANTS

To begin with, implosion motors will have to be used as suction turbines and home power plants. During the transition period suction turbines will have to replace above all the compressor turbines now being used in our conventional power plants.

Schauberger's suction turbine will completely revolutionize the current power plant construction methods and will soon replace the present exclusive compressor turbine. The installation of suction turbines would result in substantial monetary and material savings. The fixed hydroelectric power plant and construction costs would be reduced at least by 70 - 80%, since no longer would it be necessary to build such costly installations as - to mention but a few -- high dams and compression tunnels. Suction turbines, once they have been started, draw in water without further assistance, and therefore require only a fairly shallow basin for their inflow and outflow waters. Thus, substantial savings would be realized, particularly in such construction materials

as cement, reinforced concrete, structural steel, etc., which could then be utilised for road construction (in most countries the latter is lagging), or other vital construction projects.

Water consumption being equal, the power output of suction turbines is 700 to 800% higher than the power output of compressor turbines. This means that countries which already have hydroelectric power plants could meet their power requirements over a longer period of years making use of their present facilities. It has been calculated, for example, that in Austria the maximum total power output of the present hydroelectric power plants (at least those which can be expanded) in full operation and with existing overhauled compressor turbine systems, is 40 billion kilowatts a year.

#### NEGATIVELY POLARIZED WATER

Besides, the present compressor turbines have seriously impaired the vital magnetic axis of flowing waters. This has drastically affected their buoyancy and towing capacity and, consequently, it has increased dredging costs. The polarity of the oxygen in the water is being changed by the compressor turbine systems. As a result it is becoming aggressive and it stimulates the proliferation of pathogenic microorganisms in the water. An additional consequence is that in the adjoining areas the water table is sinking. Due to the breakdown of the magnetic axis, the useful bacteria which, under normal conditions, are the natural purifying agents, are dying. This could be remedied by two different means: one, by installing suction turbines which restore the magnetic axis, and two, by placing suction spirals along the river beds.

It is an experimentally demonstrable fact that when healthy water has been centrifuged by compressor turbines or compressor blades for an hour, its pathogenic bacterial flora shows overnight a visible increase and, conversely, that such infected water can again be made into excellent spring water overnight by coiling it or swirling it for an hour by means of a suction spiral in a centripetal manner (in a manner restoring its negative polarity). Schauberger succeeded not only in changing sea water into fresh water by cold distillation with the aid of the suction spiral, but also generated power in the process.

The question of low-cost power production can be positively solved not only by equipping the existing large-scale hydroelectric works with suction turbines, but also by producing for home use small power generating units designed to operate on a few liters of water – or, at a later stage of development, on air.

This type of decentralized power supply system is much cheaper and far more practical. Many states would be spared the heavy expenditures entailed by the construction of large-scale power installations, inasmuch as such investments are covered by government funds, while home power plants would be purchased by private parties. These inexpensive units produce electricity at nominal

cost and require no special attention. They would pay for themselves within a very short time and soon a number of industrial establishments, workshops and, above all, farms would have power plants supplying each of them with electricity according to the capacity of their units and their needs.

These home units present obvious advantages. In the first place they make the owner independent of other power networks. At the same time they appreciably reduce the consumption of high-voltage power and the number of the usual feed lines, in particular in regions still inadequately or unprovided with electricity. Secondly, they can be readily exported to economically undeveloped countries making it possible for the latter to avoid heavy power plant construction investments.

The home power unit based on the Implosion principle is in a developmental stage for the present (1954) since it is still necessary to determine which type of connection would be most suitable for this model.

#### IMPLOSION MOTOR IS A LIVING ORGANISM

The unit is like a living organism, because once the water on which it operates has been let in, it starts to circulate like blood in the human body. The upper part of the unit houses a small suction turbine which is started with all valves open. After the turbine has reached a certain number of revolutions per minute, a vertical circulation is started which resembles the circulation of the blood through the venous and arterial systems of the human or animal body, inasmuch as it follows a series of cycloidal spiral geometric curves.

Due to the circulatory movement produced by the suction and spiral channels, the water in the turbine is coiled, that is, swirled and drawn to the center almost without friction. The water, while being mechanically and physically coiled, cools rapidly and its temperature drops to anomaly. As it undergoes specific condensation a vacuum is created which, in its turn, produces a constant suction pull. We find exactly the same in the human chest which is forced to inhale air by a diamagnetically produced vacuum. This mechanism underlies all circulatory motion.

An excess hydraulic pressure is produced in a water tank which is located in the lower part of the unit. This excess pressure constantly forces the operating water upwards, through a lateral stand-pipe, At the same time the water is strongly pulled and entrained in the same direction by the vacuum which is created by the pulling forces of the spiral suction tube, and it flows, carrying an overcharge of terrestrial (negative) magnetism. When the turbine reaches a certain number of revolutions per minute, the circulatory process within attains a speed several times higher than that of sound, and the molecularly condensed operating water leaves the suction spiral through special nozzles, forming an almost homogeneous suction head which revolves spontaneously

around its own axis like a cyclone or hurricane.

This type of cyclone, however, can no longer be measured in the engine, because its intermittent swirls and sweeps take place within such brief time-spans and over such short distances that they can be registered by mechanical measuring instruments only if intercepted by special filter devices.

#### THE GENERATION OF COLD LIGHT, AND VACUUM LIFT

When this diamagnetically charged vertically emanating flow of energy is caught on pointed collectors (these must be carefully insulated on the outside) and conducted over further wire point spans (Brucken) into grounded vacuum tubes or bulbs, the inner surfaces of the evacuated bulb light up with a so-called cold or natural light. The intensity of this light increases as the reactor rotates faster and faster. This reactor is designed according to the laws of Nature, constructed of the right alloys, and properly insulated. Thus the construction of cold-current generators for use as home power plants will permit us to produce cheaper light and better light, because the present electron-electrical hot light production method arrests developmental processes and, with the existing type light bulbs, is harmful to the eyes.

The nearly homogeneous suction head is coiled in the Schauburger turbine around and into itself. Parenthetically speaking, the same has been observed just recently in cyclones. It has been established that the center of the vortex, which moves at the rate of 100 to 200 km/h, is surrounded by a second spiral which has been clocked at 800 km/h. The homogeneous suction head is deflected in the rotational direction of the suction turbine by check-valves (Bremsdusen -- perhaps; intercepting nozzles?) of very special design. The heretofore almost unrecognized specific physical nature of suction and of the diamagnetism it generates increases the force of rotation -- which is the actual motive power of the engine -- a feature which represents the greatest advantage of the implosion engine in general, and of the home power plant in particular.

The energy thus derived from water or air must be checked and captured, otherwise the suction turbine would "run away", meaning that it would levitate! This can be prevented by connecting it to a dynamo, which makes it possible to produce also thermoelectric power.

The basic difference between the compressor and the suction turbine is that while the first rotates due to a great pressure gradient and converts only a fraction of this energy to electricity the other once having been started, draws in spontaneously its motor medium and takes advantage -- against all hitherto known physical laws -- of the descending temperature gradient.

It can be safely said that even today the Schauburger implosion technique can bring the entire energy problem, and in particular the whole electronics industry, into new paths where it could not

be rivaled by even atomic energy. Implosion motors offer us for the first time the possibility of making practical use of diamagnetism, this foundation of the Life Force, and besides, to obtain cold light in various colors without the help of gases.

#### THE DIAMAGNETISM OF FLYING SAUCERS

Those who have attentively followed the ideas presented in the above must have been struck by the thought that the principles of modern aviation stand in direct contradiction to the natural processes of motion. The same propeller which is used by nature as a brake, serves in modern flight technology as a means of propulsion, but with enormous energy losses. It first whips or rams air back and then it produces a secondary effect the suction of which pulls the air vehicle forward. Similar processes of motion occur also with rocket aircraft and with nuclear aircraft now under construction. Pressure forces are used in every field of technology, instead of suction forces, although the latter are more effective, more economical, simpler, and above all more in keeping with the laws of nature, due to the fact that they create a vacuum and diamagnetism and require no propellant in the accepted sense of the word.

Although by now the great world powers must be acquainted with the principle of Flying Saucers. The USA has just recently requested permission to put into production rocket-base flying saucers. Even interplanetary bases are to be constructed using exclusively pressure forces. This proves that even these attempts to reach the outer spaces are biotechnically misdirected and that they will result in an enormous waste of money and materials. In the first place, interplanetary flight is possible only by suction force based on diamagnetism, thus on etheric force which pervades the entire universe. This force allows the heavenly bodies to float freely through space and to move along their proper orbits.

The universe can never be conquered by pressure forces or pressure radiation (Druckstrahlen). Billions have been poured of late into this, as well as into atomic research; but it would be far better to spend this money on useful projects, because aviation of the future will resort primarily to levitation made possible by the suction spiral.

In the case of diamagnetic levitation, the force has to contend neither with a sound barrier nor with a heat barrier. The sound barrier does not enter the picture because the future air vehicles -- whether disc or cigar-shaped -- will be effortlessly moved forward by the steadily preceding suction pull. The opposite is true of our present aircraft (including the jet-propulsion rockets) with produce, like explosion, first compression and resistance, and only thereupon suction, giving rise at the same time to-increasing friction and a high-invincible heat barrier. It releases as it breaks through the sound barrier a tremendous pressure wave which below, at ground level, splinters windowpanes,

breaks doors and gates, and flattens roofs.

None of this occurs with flying discs which are propelled by diamagnetism, i.e., etheric forces. It goes without saying that Flying Saucers encounter no heat barrier since they generate a negative pressure and diamagnetism. Their metal or glass air frames are no more heated than the shell of an implosion engine. On the contrary, they cool to their specific zone of anomaly. It would be impossible to imagine more perfect air vehicles. They have no sound barrier, no beat barrier, and they require no costly propellant because they generate their own motive power, that is diamagnetism.

#### THE UNIVERSAL SOURCE OF ENERGY

An abundance of this energy, Diamagnetism, is available throughout the universe. Therefore, such a diamagnetic aircraft could travel around the earth not once, but two or three times at any given altitude without having to refuel. Actually, it could travel in outer space for years, or as long as the crew did not have to replenish its food supplies.

The following observations may serve as proof that the Flying Saucers are diamagnetically propelled. As already mentioned in our chapter on diagnetism, copper is a diamagnetic metal. When the UFO's fly at a relatively low rate of speed, they are surrounded by a light greenish hue. The spectral line, of burning copper has been observed to fall within this specific green. Furthermore, air samples taken from the atmosphere in the regions where, beginning in 1947, the UFOs have been frequently observed, have shown high concentrations of copper particles in very fine dispersion. On the other hand, air samples taken before the appearance of the Flying Saucers, show a complete absence of copper. Of course, none of the observations made so far regarding the UFO's speed, performance, take-off characteristics, and various light effects can be brought in line with the familiar laws of physics. This, however, is no proof that unknown types of air vehicles can not exist. After all, the mechanism of implosion and the nature of diamagnetism are ignored in modern physics and remain to be investigated and formally clarified.

The objection that man would not be able to tolerate the speeds at which, as determined by radar, the UFOs move is by no means valid. This assumption would be valid only if we considered existing with the conventional flying methods which bring pressure forces into play. How can we tell whether higher speeds would have any adverse effect on the human organism if only suction forces were to be used?

Undoubtedly, the key to the mystery of propulsion used by Flying Saucers can be found in the application of cycloidal spiral geometric curves. Only the latter would permit the UFOs to achieve the fantastic speeds of up to 60,000 km/h at which they have been seen to fly. Some of the maneuvers of these Saucers which we con-



sider extraordinary are probably commonplace on other planets. It must be remembered that Flying Saucers have been observed for centuries, long before men representing our own civilization had mastered air travel.

#### ATOMIC EXPLOSIONS FORCED THEIR APPEARANCE

The mass appearance of the UFOs which, though still often disputed in official quarters so as to calm the general public, can no longer be denied in the face of factual evidence, appears to be connected with the effects of the atom bombs being exploded on our planet.

According to science, in our planetary system only the earth is inhabitable, wherefore it alone can be populated. This hypothesis is bound to be refuted some day by scientists, just as it was the case with the old geocentric concept of the world which placed the earth in the center of the universe and grandly permitted the sun to revolve around one of its smallest satellites. We can rest assured that the countless solar systems of the universe must include a number of other habitable planets. We still ignore the number of fixed stars in our galaxy. Perhaps they number a hundred million, perhaps more, who can tell? But we do know that our whole galaxy is but a small island in a sea of innumerable galactic systems. Hence, what could be more illogical than to assume that the entire universe consists of a mass of meteoric iron or of a certain quantity of elements spinning in space with rhyme or reason; and, what could be more presumptuous than to believe that only the earth, this tiny grain of sand in comparison with the size of the universe, can be inhabited?

Other planets, no doubt, present different atmospheric and living conditions. It would not be surprising, therefore, if various and varying forms of life had evolved on separate planets. Indeed, even the principal human races of the earth show marked physical differences. Why then, should other planets not be inhabited by supermen who have reached a much higher level of development than the inhabitants of the earth, supermen who for thousands of years have been familiar with interstellar navigation made possible by the application of etheric forces. Unfortunately, when men dream of venturing forth into outer space, their only aim is conquest.

#### EVIDENCE OF ARRESTED SPIRITUAL DEVELOPMENT

War and destruction cannot be the only goals in this world. Those who see nothing else give proof of arrested spiritual development. Consequently it is highly dangerous to put into their hands this type of aircraft (though better this than nuclear types). Hence, it is of paramount importance to match technical advances with spiritual and religious progress, to broaden our world outlook and to develop our character. Man would do better to bring peace and order to his own native planet before planning to conquer strange worlds.

## THE VIOLENT LORDS OF THE EARTH

What would happen, for example, if here on earth each man were to look upon his neighbors as robbers and aggressors, instead of treating them as peaceful and friendly guests? But the lords of this earth think only of violence and some of them even speculate in Martian real estate, selling the hide, one might say, before they have killed the bear. To men from other planets the inhabitants of the earth must appear as savages, not only because of their behaviour, but also because of their nuclear technology which threatens not only the neighbouring planets but our whole solar system, which might be said to represent a single higher organism -- or perhaps an atom of the macrocosm. In view of this, people of other planets cannot remain indifferent to the fact that men of this earth have actually reached the possibility of disintegrating the earth.

It would be hopeless for people to dream of conquering other worlds, or for some of them to think that in the case of an atomic war they could migrate to another planet. It is obvious that conditions for life differ from planet to planet, being adapted to the existing spiritual level and biological development of their own inhabitants. Some day, when people will have matured spiritually, given up senseless struggle and their attempts to destroy the earth by means of atomic forces, they will discover hitherto unanticipated means of space travel. Individuals will not use large flying saucers but small, toy-like models. Many will own such aircraft because these will be, in all probability, much cheaper than our present day automobiles.

The aviation of tomorrow will be based on suction forces and levitation, which may sound like a dream of Utopia.

There will be, likewise, fantastic possibilities of transportation. During the coming centuries street traffic will take to the air. The serious road problems now plaguing our large cities will, where every fourth or fifth inhabitant has an automobile, will be solved. There is ample room in the air for vehicles to get out of each others way by going left, right, up or down. Take-offs, instead of being horizontal, will be almost vertical, making it possible for the owners of "implos" to use their yards and roofs as landing strips.

There will be no accidents due to mechanical failure or ignition trouble. Since implosion motors have no ignition system, they are not affected even by the impact of concentrated terrestrial rays (Erdstrahlen), which are erroneously believed to be a type of mysterious "death rays". It is unfortunate that science has done little in the way of investigating these terrestrial rays, which have in some cases been known to cause motors to choke.

The Flying Saucers, as far as is known, move soundlessly. Implosion motors are, likewise, noiseless in operation and this feature is one of their greatest advantages of attraction. Let us hope that some day they will eliminate the roar of our present

of our present motors which shake the earth by their explosions.

#### MAN-MADE BARRIERS MUST GO

Speeds will be limited neither by the motor nor, presumably by the human organism. However, for the present their limits remain a matter of conjecture, inasmuch as the effects of suction flight on the human body are still unknown and will have to be studied.

Automobile and motorcycle races will become meaningless, for the reason that speed will have lost its magic attraction.

It can be taken for granted that the new methods of flight will affect politics. Instead of traveling, as today, by car or plane, people will find it cheaper to go by Implo; thus the time is bound to come when borders will no longer be capable of stopping the thousands of vacation-bound travelers hurrying by implosion aircraft to sea shores and mounts in search of rest and relaxation. The birds in the air can cross any state line at will, yet homo sapiens, this proud master of land, air and sea, is still stopped by the artificial barriers which he himself has created in defiance of all natural laws.

Thus, only by eradicating national and political strife and the struggle for bread between nations and races, will it ever be possible to establish a universal world-wide Kingdom of Peace; and this can only be done if man's technical sciences and progress are based on the laws of Nature.

May the Implosion method help people to mature into peaceful and rational citizens of the world.

\* \* \*

CONCERNING THE DEATH OF THE ELEMENTS, ESPECIALLY OF WATER  
Elements die, as men die, on account of the corruption in them. As water at its death, as it were, consumes and devours its own fruit, so does the earth its own fruits. Whatever is born from it returns to it again, is swallowed up and lost, just as the time past is swallowed up by yesterday's days and nights, the light or darkness of which we shall never see again. It is no weightier to-day than yesterday, not even by a single grain, and will after a thousand years be of the same weight still. As it gives forth, so, in the same degree, it consumes. The death of the water, however, is in its own proper element, in that great terminus and centre of water, the sea, wherein the rivers, and whatever else flows into it, die and are consumed as wood in the fire. Rivers, indeed, are not the element of water, but the fruit of that element, which is the sea; from this they derive their origin, and in this they receive both their life and their death.

From THE HERMETIC AND  
ALCHEMICAL WRITINGS  
of  
PARACELSUS THE GREAT

# CLIPS, QUOTES & COMMENTS

## THE IMPLOSION AT FIRST HAND!

While inventor Viktor Schauberger was perfecting his Implosion-Vacuum-Suction engines in Vienna in the 1950s, Flying Saucer contactees were experiencing it at first hand! For George Adamski it was when he approached a landed Scout saucer on the California desert, Nov. 20, 1952. Well, not actually landed but producing just enough lift to float off the ground.

"The ship was hovering above the ground, about a foot or two at the far side from me, and very near to the bank of the hill. But the slope of the hill was such," writes Adamski in "Flying Saucers Have Landed", "that the front, or that part of it closest to me, was a good six feet above the earth. The three-ball landing gear was half lowered below the edge of the flange that covered them, and I had a feeling this was a precautionary act just in case they had definitely to land. Some of the gusts of wind were pretty strong and caused the ship to wobble at times. When this took place the sun reflecting on the surface of the ship caused beautiful prismatic rays of light to reflect out from it, as from a smoky diamond. This was observed, too, by the six others who maintained a steady watch from a distance.

"Nearing the ship I noticed a round ball at the very top that looked like a heavy lens of some kind. And it glowed. I wondered if it could be used as one end of a magnetic pole to draw their power from space as they were moving through it. . . And once, for a fleeting second, I saw a beautiful face appear and look but. I felt that whoever was inside was looking for the one who was still out with me, but no word was spoken. The face disappeared quickly (From the porthole on the side) but I noticed that this person, too, had long hair like the man I had been talking with. (At right the Alice Wells sketch of the Venusian saucer pilot as seen through binoculars).

"The lower outside portion of the Saucer was made like a flange, very shiny yet not smooth as a single piece of metal would appear. It seemed to have layers of a fashion, but they wouldn't be used as steps because they were in reverse of what steps would be. . .

"My space-man companion warned me not to get too close to it and he himself stopped a good foot away from it. But I must have stepped just a little closer than he, for as I turned to speak to him, my right shoulder came slightly under the outer edge of the flange and instantly my arm was jerked up. and almost at the same instant was thrown back down



against my body. The force was so strong that, although I could still move the arm, I had no feeling in it as I stepped clear of the ship. My companion was quite distressed about this accident, but he warned me and I alone was to blame. However, he did assure me that in time it would be all right. Three months later, his words have been proved true for feeling has returned and only an occasional shooting pain as of a deeply-bruised bone returns to remind me of the incident. . . . "

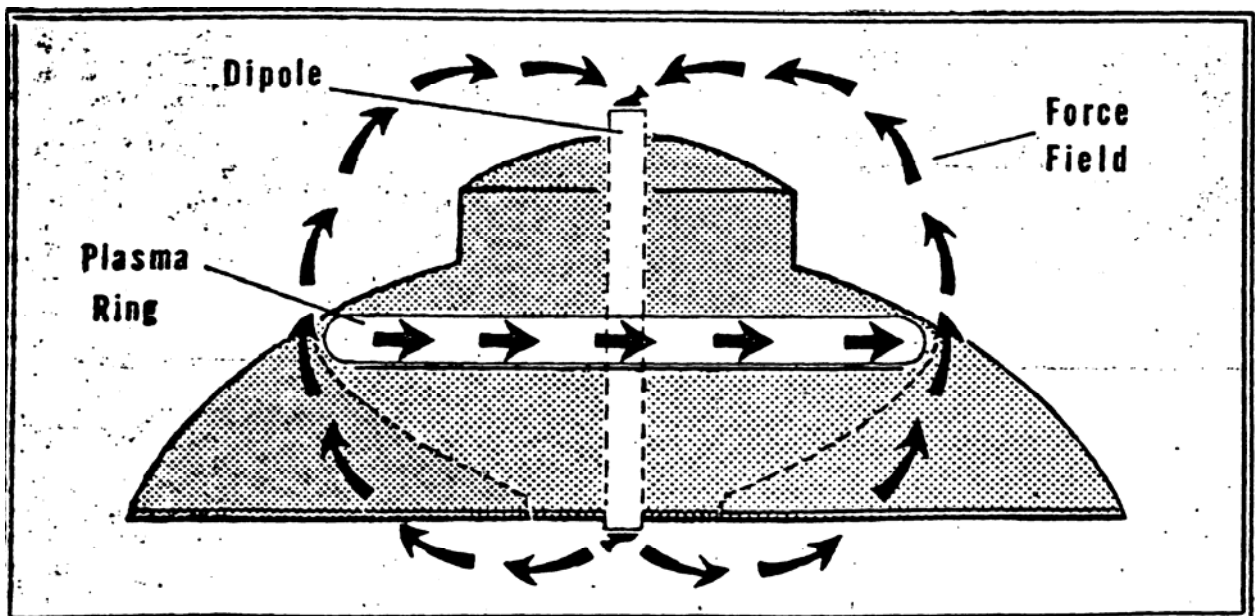
It was a very real, physical reminder, too! Before leaving the Venusian asked for and received one of the exposed negatives Adamski had in a plate holder in his coat pocket, indicating that it would be returned to him later.

#### EVIDENCE FOR AN IMPLoding VORTEX

"... Where the entrance was, or how he went into the ship I do not know for sure, but as it silently rose and moved away, it turned a little and I saw a small opening about the centre of the flange being closed by what looked like a sliding door. Also I heard the two occupants talking together, and their voices were as music, but their words I could not understand.

"As the ship started moving, I noticed two rings under the flange and a third around the centre disk. This inner ring and the outer one appeared to be revolving clockwise, while the ring between these two moved in a counter-clockwise motion. . . . "

MHD, Magneto-Hydro-Dynamics is the fancy name for the science of the generation and controlled flow of a field of charged particles such as illustrated in the Flying Saucer drawing below. This accompanied a confidential report published in Hollywood in the 1960s

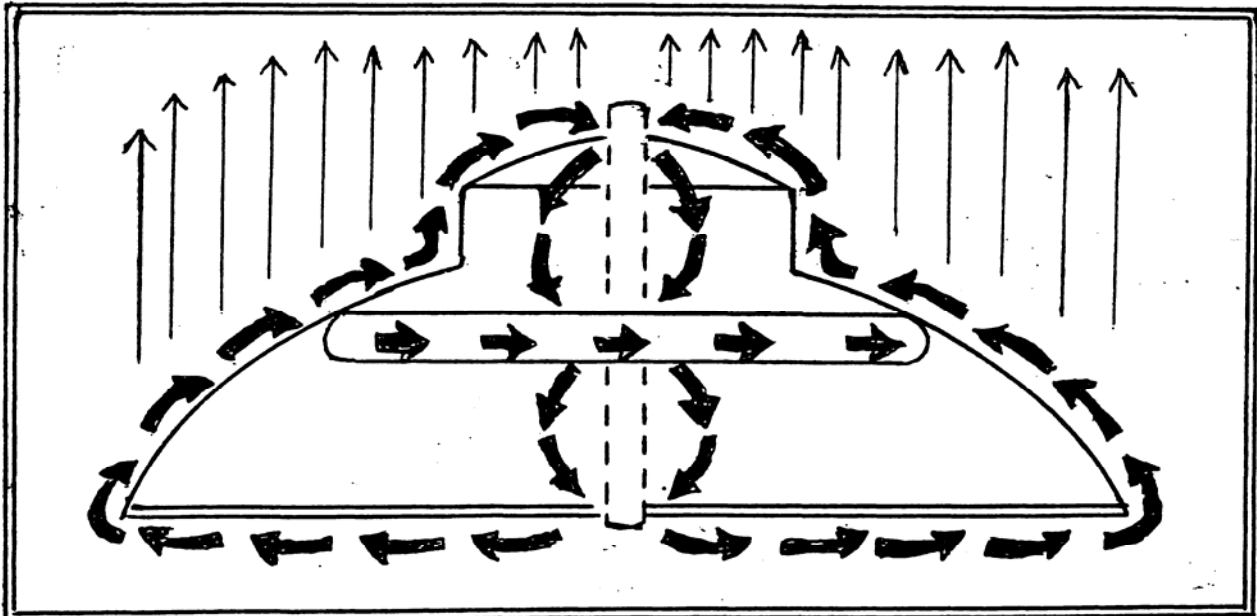


by the Facts Uncensored Publishing Company. But for Adamski's arm to be jerked violently upward against the rim of the hovering Saucer the vacuum-creating flow of energy would have to come all the way out to the edge of that rim and around it and upward as we have shown in our adaptation of the Saucer drawing below. This also brings into play the full area of the parabolic curved upper surface of the craft for lift – as described by the Ganymede Saucer captain to Dino Kraspedon in Brazil in 1952, the same month of Adamski's experience!

"CREATE A VACUUM IN THE DIRECTION OF TRAVEL"

"We use the natural atmospheric pressure in the flying saucer," said Ganymede. "It is this which gives us the necessary propulsive force."

"Please be more explicit," said Kraspedon. "I do not quite under-



stand the system you describe."

"If we maintain this pressure underneath the saucer and bring about a decompression on top, the craft will be given a terrific upward thrust which no known force can match. It is quite simple, my friend, we create a vacuum in the direction of travel. (This explains why UFOs have been seen to rise up straight and then tilt before moving horizontally in that tilted direction. RHC.)

"If we have low pressure on one side the other side is subject to the full atmospheric pressure. Any object, whatever its nature, can only be moved if some difference of energy potential is created. For example, with a saucer of 20 meters diameter, we get Pi times the radius squared = 3,141,600 square centimeters as the surface of the saucer. With an atmospheric pressure of 1.033 kilograms per square centimeter, we can calculate that the force operating on a

a saucer of 20 meters diameter is equal to 3,278,272.8 kilograms. This gives you some idea of what is involved, even the smallest type of saucer develops a thrust of approximately 3 million kg., whereas even your most powerful aeroplanes cannot develop more than a few thousand kilograms of thrust."

#### ATMOSPHERIC DRIVE

Though the title of Chapter Three of Kraspedon's book, "My Contact with Flying Saucers", is titled "Overcoming Gravity", this is not true Space Drive nor Contra-Gravity Drive because it depends on a vacuum created in the earth's atmosphere. Nor is there any hint in Ganymede's dialog with Kraspedon that an Imploding Vortex is central to the creation of the vacuum on the upper surface of the space craft. He frankly told Dino that they weren't ready then to reveal all of their secrets. However, Adamski got a little more detail from the Venusian when his photographic plate holder and film were returned to him at Alice Wells' home at Palomar Gardens, California a month later. The Venusian Scout Saucer flew low over the place in the day time - so several good pictures could be taken of it - and the plate holder was tossed out into the yard.

Below is a reproduction of the image on the film in the plate holder when it was developed. Perhaps the Venusian hieroglyphics contain a practical explanation for Einstein's Unified Field Theory, but

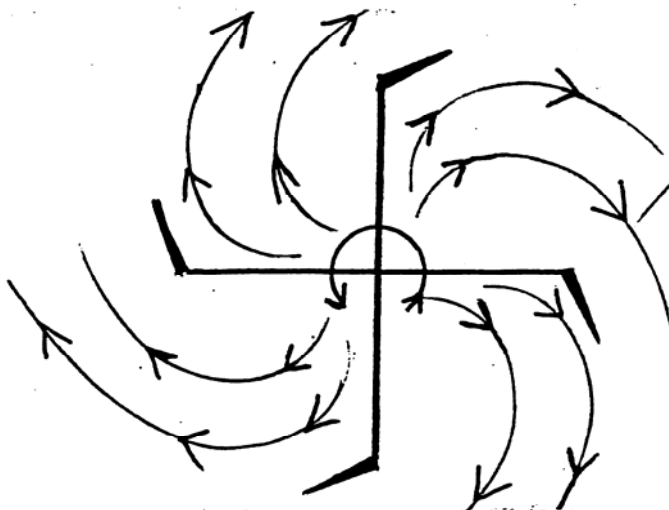


will have to wait for a translator. Meanwhile, the swastika or hooked cross drawn under the cabin of the UFO gives a clue to its propulsion. The problem for the design engineer is: Which way does the swastika revolve? If it's clockwise the effect would be centrifugal, like the exploding propellers on our airplanes and the turbines in our jets; but we'll follow Schaubarger's inspired lead and say that the swastika is turning counter-clockwise to create a centripetal effect, an imploding impeller.

The most common example of this in our own lives is the whirlpool of bathwater going down

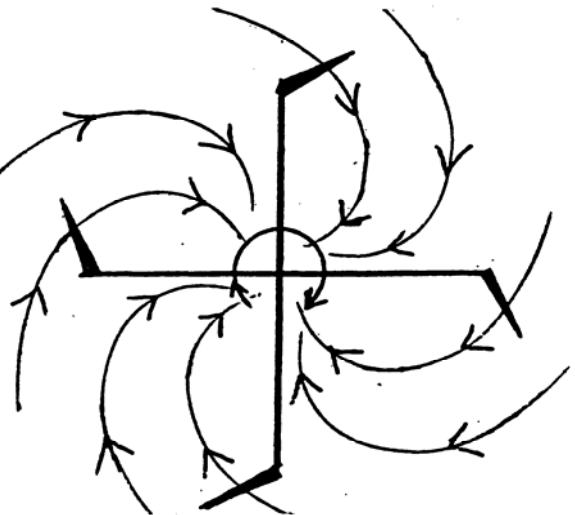


## EXPLODING CENTRIFUGAL VORTEX



Counterclockwise, Outward

## IMPLODING CENTRIPETAL VORTEX



Clockwise, Inward

the drain. Another, more striking example, which illustrates the awesome power of the inward-turning vortex claimed by Viktor Schaubarger, is the tornado. We are in the tornado season now and imploding vortices are moving inexorably across the land, destroying everything in their path where the funnel touches down to the earth. Those who have been taken up in such imploding vortices, and survived, report time changes which indicate this is a true Space Warp affecting the very structure of matter. The tornado is a crude Time Machine; so is the Flying Saucer, but more sophisticated, with its Space Warping power plant under constructive control!

Dr. Andrija Puharich, in his book "Beyond Telepathy", proves pretty conclusively, that Time is one of the essential factors in the Gravity equation. Change Time and you change Gravity, thus affecting the "glue which holds matter together. We review that highly important material in our lecture "Flying Saucers Uncensored"

Perceptive Associates will see a contradiction in the Flying Saucer propulsion idea illustrated on page 25 and that described by the French scientist, Dr. Petit, on page 34 of the May-June Journal. Dr. Petit says the imploding vortex works upwards "causing gases to rush out through the top of the UFO. But remarkably, a magnetic field pushes the gases downward along the craft's outer hull - providing lift".

At this point in time we cannot resolve the contradiction. The fact of George Adamski's arm being jerked upward at the Saucer rim would seem to indicate that the flow of charged particles is upward along the curved surface and inward at the top, as illustrated, rather than the reverse. Perhaps it works either way as long as a vacuum is created on the upper surface. Perhaps there is a third explanation not clear at this time. We welcome comment and observations by the Associates.

## VICTOR SCHAUBERGER AND HIS WORK

By Albert Zock

Victor Schauburger, proponent of spiral and centripetal force, is known to the reader through the BSRF publication No. 2-Q, "Implosion Instead of Explosion", by Leopold Brandstatter (1955). I was very impressed after reading this and attempted to find out more about it, such as subsequent developments or new research.

The Austrian Patent Office was contacted but gave no information. Mr. Schauburger's son ignores requests from this continent. Mr. Brandstatter's widow offered assistance, however, and I wrote to the people she referred me to. Both Mr. Brandstatter and Mr. Schauburger are now dead.

Victor Schauburger was a Forest Ranger before and after the First World War under Prince Schaumber-Lippe of Bavaria. This area was still a beautiful and unspoiled corner of the world then. One day, as often before, he was watching some trout standing motionless in the strong current of a mountain stream. For him, they had always been the symbol of the Man of Tomorrow who, he felt, would no longer need hard labor to survive. When he disturbed them with his cane they didn't dash to the side, but always went forward into the current. Schauburger assumed that a force unknown to the science of the day was influencing their behavior.

The period that followed was difficult for him, that is until he discovered the Implosion Force. As happens to anyone harboring a new thought, no one understood him. He couldn't find a tradesman who would manufacture a spiral pipe with a dent in it. His criticism of fellow scientists caused him still more difficulties. He supported his theory with experiments but no one would listen as he was by then considered a dangerous outsider.

He was eventually found troublesome enough to warrant committing to an institution. He was, however, fortunate enough to have friends with influence and soon left, with a document in hand stating that he was in possession of all his faculties. He was henceforth the only one who could prove his sanity without the shadow of a doubt.

Early publication of Schauburger's invention resulted in

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an invitation to work in America.

#### THE OIL COMPANY KISS OF DEATH

He came to Texas with his plans and models hoping to build a power plant for the home, which would make cheap electric power available. Unfortunately, the promises that had been made to him came to naught, and Schauberger, a very disillusioned man, became ill. He had consented under agreement to remain in Texas for three months. At the end of this period he was persuaded to sign the following contract before going home. Five days after landing in Europe, he died (1958).

(No wonder Schauberger's son wants nothing to do with America or Americans! This shabby treatment of the Austrian inventor proves that his Implosion motor was a threat to the established oil and nuclear power interests. So they murdered him with false promises, just as the Sick Industry broke the heart of Georges Lakhovsky in New York City in the early 1940s, with a research program on his Multi-Wave Oscillator which deliberately went nowhere. RHC.)

The Schauberger contract stated:

- that all of his patents would become the property of a consortium managed by a Mr. Donner.
- that any future inventions or developments would also be owned by this consortium.
- that he would refrain from discussing any of it with other parties.
- that he would refrain from publishing.
- that all plans and models would remain with the consortium.

Like many inventors before him, Schauberger died poor, but his work and ideas are still alive. His son, Dip. Ing. Walter Schauberger, for one, is teaching about Schauberger's achievements in his Pythagoras-Kepler School.

Schauberger was a multi-faceted inventor. At the beginning of his career as a forest ranger he worked for a landowner whose young wife often went to the Riviera to play the casino at Monte Carlo. Always in need of money, her husband wanted to increase logging productivity. Oxen were then used to transport logs. This was slow and expensive. Schauberger suggested floating them down the creeks instead. He estimated the cost reduction at 90%. Engineers declared this was impossible since oak and beech are heavier than water and cannot float.

Schauberger knew his idea would work on cold winter nights if a spiral could be created in the flowing water, but that would have to be in a trough or flume with laths of larchwood nailed

diagonally to implode the flowing water. The heavy logs went forward like bullets shooting out of a rifle. They twisted about their own axis without ever bumping against the walls of the trough, even at full capacity.

#### THE SPIRAL MUST BE HARMONIOUS

The spiral is subject to bipolarity. There are harmonious and inharmonious spirals, the same as with melodies. A spiral is harmonious when its radii are divisible by a whole number, i.e., 1 for the first coil,  $1/2$  in the second coil,  $1/3$  in the third coil, etc.

Nature uses egg shapes -- one of its secrets. But it works slowly. Applying this principle would be inefficient in view of today's pollution and destruction. For this reason Schauberger wanted to speed up the natural processes. He observed that the planets orbit around

the sun while at the same time spinning on their own axis. There is a double pattern as in waltzing. The spiral pipe incorporates this characteristic. It is conical and generally egg-shaped except for an inner bend along one quarter of its circumference.

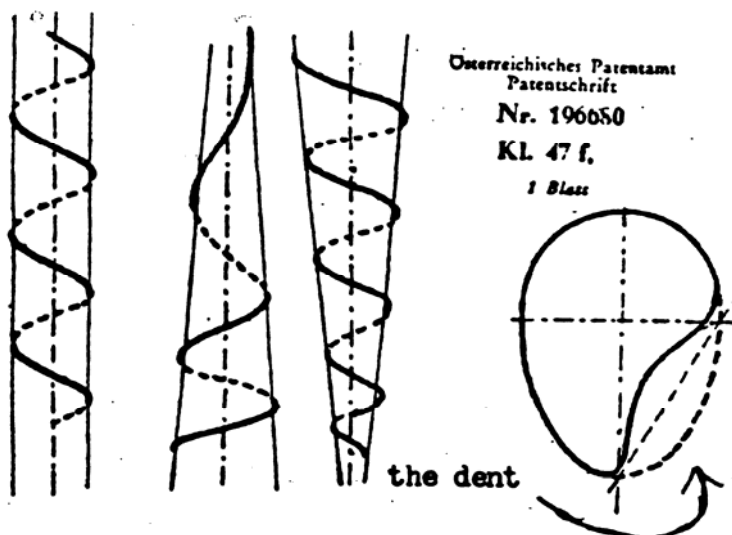
The shape causes the water to roll inwards under the action of the rotor on which the pipes are mounted.

The manufacture of such a pipe was at first difficult; but a solution was eventually found: a sheet of copper was cut to the harmonious measure, bent in the shape of a pipe, welded along its length (embodying, of course, the irregular ovoid mentioned above). The impossible was made possible. We know that



Xerox copy of photo of Schauberger log flume under construction, the vortex-creating wooden lathes not yet in place.

Nature uses the spiral in many ways: hurricanes, twisters, tornadoes, streams and ocean currents. The Tesla coil, for instance, seems to work through this principle, or perhaps works better because of it. When the last three inches of the secondary winding are tapered and conical, the



coil gives a better performance (e.g., the end where you attach the MWO antenna). If interested, you can obtain the conical ceramic insulators for this purpose (\$3.50) from Information Unlimited, Amherst Professional Building, Box 716, Amherst, N.H., 03031. They carry transformers for Tesla coil 5000 Volt - 16 M Amp (\$18.00) and plans and kits for Tesla coils and high voltage capacitors as well.

#### VORTEX IN THE PYRAMID?

Schauberger introduced us to implosion and the centripetence force. Was he the first one to stumble upon this and put it to use? Chinese frugality is often chided by saying that anything that crawls in China eventually finds its way into the frying pan. Similarly, one could perhaps say that anything the Egyptians knew found its way into the Pyramids. Were the spiral and centripetence forces also incorporated into the Pyramids, beside the Pi, the Phi and all the other mathematical data which has been discovered therein?

Edward J. Kunkel, 295 W. Market St., Warren, Ohio 44481, says he has investigated almost every inch of the interior of the Great Pyramid. He suspected it was actually a giant ramp pump and that the pyramid was built by floating the blocks on barges on the rising water level in the interior of the Pyramid, as the name pyramid implies. In Greek, "pyr" means water, and "amid" means within. On page 30 of his self-published book, "The Pharaohs' Pump", Mr. Kunkel included a diagram of what is known as the well. He feels certain this was the air combustion chamber for the ram pump, which system would have included all the other passages as well. According to Mr. Kunkel the shape of the well had the following effect: Air trapped near the small ceiling formed a cushion, and the moment a downward flow occurred, air pressure in the cell conversely became extremely high and, seeking relief, moved the water between the cell and the chamber, thus initiating the action which a moment later developed into a whirlpool. A model worked better with this cell than without it. Was it knowledge or accident? Inspired by what he found in the Great Pyramid, Kunkel invented a ram pump and obtained a U.S. Patent on it.

#### ISKUSIN AND ISKAD0R

Dr. Rudolf Steiner, M.D., the founder of Anthroposophie, found that the sap of both summer and winter mistletoe made a good remedy against cancer when injected. He called it Iskador, He described cancer as a disorder of the cell structure for which summer and winter mistletoe, when used together, could work wonders because of their regulating ability. Furthermore, during the process there is a build-up of a sort of electrical energy as the drops fall; this electrical energy, although a side effect, seems to be the main healing force. This energy

initially got lost during the mixing of the mistletoe as it was done by centrifuge. Dr. Med. Karl Roller, who was oriented to spiral force, reversed the process and used centripetal force which conserved the electrical property of the medicine. He called the drug Iskusin. (Electricity created by falling drops will be discussed later.)

#### THE WATER WHIRL IN PRACTICE

The pollution affecting the river Elbe in West Germany made it impossible for the city of Hamburg to use it as a source of drinking water. Deep wells had to be drilled and it was found that the water contains carbonic acid which is corrosive and endangered the City's water system. Carbonic acid can be neutralized with lime, at a ratio of 100 grams of lime to one cubic meter of water, or 6.6 tons of lime to 66,000 cm. of water, to be mixed during a 24-hour period. Lime and water were mixed spirally by a mixer, the upper portion of which had a saucer-like shape with a diameter of 83" and was 23 1/2" deep. A whirling arm of 3 1/4" diameter was driven by a motor. Not only did the centripetal motion do all the mixing, but also reduced the need for lime by 50% in each well. The city uses six such mixers.

#### THE GOLDEN PLOUGH

Because of his experience with all kinds of water problems, Schauburger was nicknamed "water magician". He was once invited to Bulgaria in connection with the problem of farmland drying out. The Bulgarians were then using steam plows, the ploughshares being made of steel. Strangely enough, there was no drying out in the old Turkish settlements where wooden ploughs were still being used. Could the material used for the ploughshares be the reason for the difference? Back home in Austria, Schauburger made experiments. His ploughshares were covered with copper plates. The result was surprising, up to 60% more harvest. New experiments show an increase of up to 100%.

The use of steel has disadvantages; it has no magnetic permeability. The earth magnetism gets cut and diverged. This creates turbulent energy fields, a chaos; but more important is the grinding off of tiny steel particles because of the fast working methods of today. The fine steel dust combines with the oxygen. The result is oxidation and rust, which not only deprive the soil of some of its oxygen - at the same time killing some of the micro-organisms in the soil - but also causes the groundwater to sink. In time the soil dries out. You can prove this by putting a small quantity of rust dust into water. This is sufficient to prevent falling drops from generating electricity.

Another experiment was used to put galvanic elements into

the ground. A copper plate was attached to one side of a container of water and a zinc plate to the other. This created an electric field, its radiation saturated the surrounding soil and the growth rate doubled.

#### BACK TO MESMER

It looks like we are back to Mesmer's experiment! If putting copper and zinc plates in water creates electricity that improves the growth rate of plants in that area, what would this do to men and women? It would be interesting to experiment in a bathtub. Leave the plates in some water for a day or two to create a build-up, then just add some hot water to fill the tub at the desired temperature. Perhaps some of the Associates would like to participate in this experiment and share their impressions with us?

A large technical company in Germany produces garden tools made from copper and byrillium, made after Schauberger's discovery. So far they are being used only in private homes and nurseries. Copper-byrillium tools are not as hard as steel; there is more deterioration; but this is helpful as it puts trace minerals back into the soil and creates bio-electricity without which there is little growth.

#### HOW IMPLOSION CAN IMPROVE YOUR SMILE

Orthodontist, Prof. Dr. Baiters always disliked the orthodox methods used to straighten teeth and treat gum disorders. In his opinion, freeing the creativity and healing forces of the body is a much better solution. He consulted Schauberger in Linz, Austria to get an introduction to Implosion. Dr. Baiters successfully developed the Bionator, braces made of caoutchouc which work from behind the teeth and assume the shape of the desired correction. The patient can remove the Bionator at will. It uses the implosion vacuum caused by the free flow of saliva and the suction of the gum.

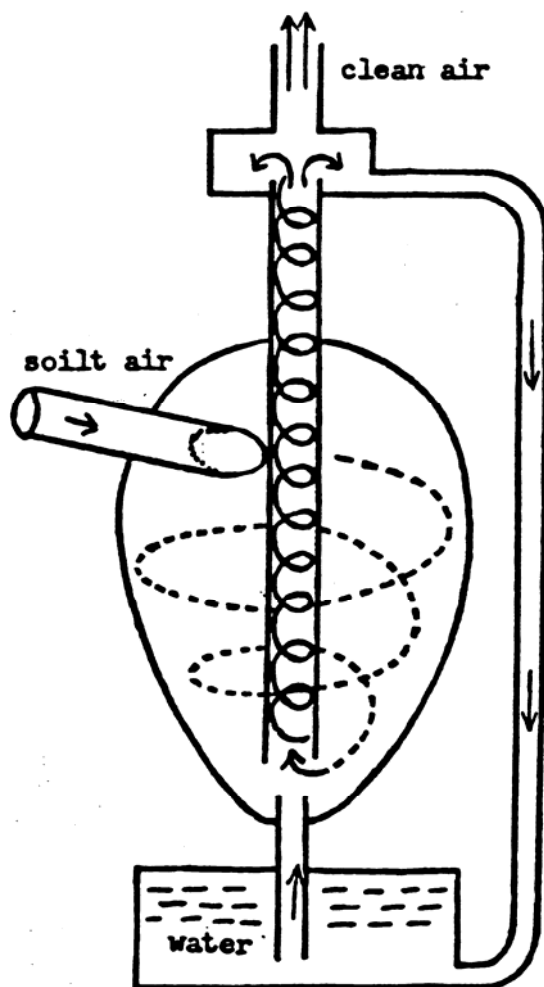
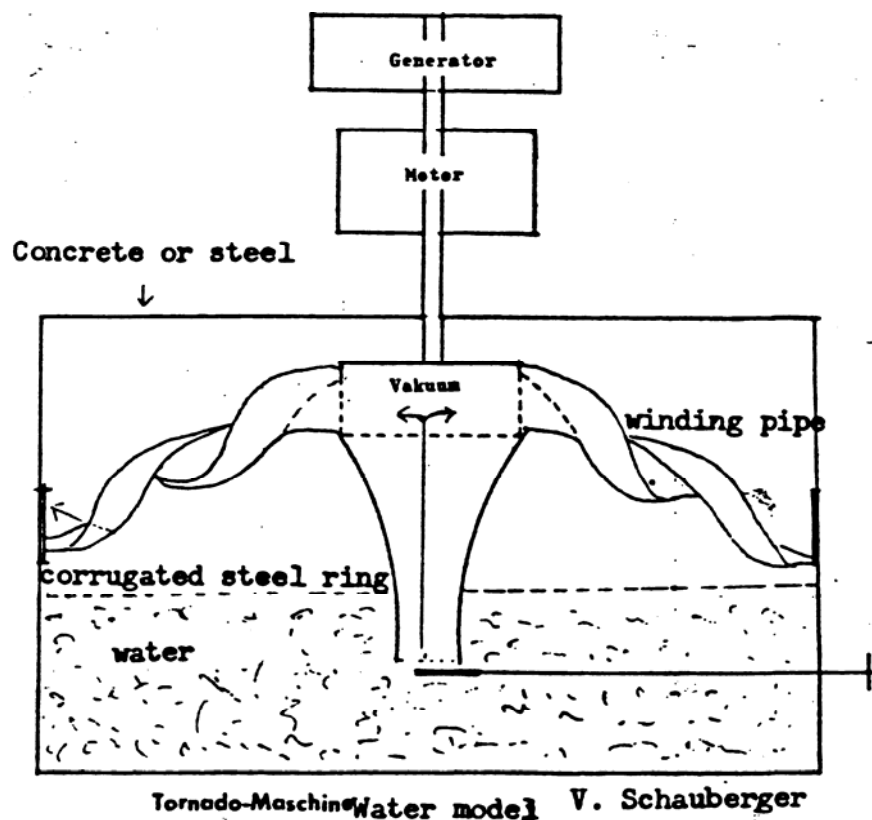
#### THE WATER TORNADO IN ACTION

A motor turns the conical rotor in the middle of the tower. The pipes are mounted with the larger opening on the rotor. The smaller end, with the jet in it, reaches almost to the wall on which a wavy steel ring is positioned. When the rotor with the pipes turns, the centrifugal force presses the water out through the jets against the wavy or rippled steel ring, which causes a recoil and relieves the motor. The centrifugal force in the winding pipes creates a suction on the bottom part and so make an almost perpetual movement. The Air Model works the same way, only upside down.

The Schauberger Biotechnic Ltd. in Switzerland manufactures an air purifier. A ventilator blows the polluted air into the



egg-shaped housing. The Air rolls itself in and compressed at the bottom. Beneath the egg shape is a container with water, connected to the housing with a pipe. When the whirl is created, the water rises from the bottom through the pipe and mixes with the air, cleaning it. The clean air leaves through the top and the water flows back down depositing the dirt on the bottom.



#### FIRE IN THE WATER

"It is true that science has not yet solved the riddle of the water-jet, but Schaubberger should not tell such fairy tales as that rolling pebbles in water disperse sparks which make the Rhine river glow at night. That makes it hard to take such a man seriously." Such remarks were often made when someone discussed Schaubberger's theories. Prof. Dr. Zimmerman heard it often and, when visiting Schaubberger, talked about it.

Schaubberger laughed, took two pebbles out of a drawer, filled a pail with common tap water and moved to a darker corner of the room. As he rolled the stones against one another in the water, Dr. Zimmerman could observe the flying sparks which had the same force as if it had been done in the air. Cold light: it was almost as in a fairy tale. "Once in Yugoslavia it failed,"

said Schaubberger. "I had in mind to demonstrate this to a group of unbelievers, got the pebbles out of the river, but got no sparks. Then it dawned on me the stones had been on a long journey along the river bed and had lost their power. Take only pebbles from a mountain or the upper part of the river; better still, break the stones and use both halves."

Friction creates heat in the water as in the air. To create sparks, oxygen is needed and we find oxygen in water as well as in air. The legend about the glowing Rhine river may not be a fairy tale after all. When the strong river current pushed the rocks downstream, and the stones bumped against each other, then in the darkness of the night the dispersing of the sparks could be clearly seen (the water in those days was still clear and unspoiled; Today, after grading the river bed and its shores, the polluted water has lost its magic.

#### IS THE HOME POWER PLANT NEAR?

In different places in Austria and Germany, tests are being done with great enthusiasm on home power plant models. The greatest obstruction has been finding ways to construct the shape of the spiral pipes. This problem has now been solved with an accuracy and ease that were not possible in Schaubberger's time. First, a wooden model was made. The profile of the outside will be the profile of the inside of the pipe. To achieve this, the wooden model has a two-piece form adjusted around it in some flexible material. After the material has hardened, the model will be taken out and wax poured in its place. The wax core will then have the shape of the wooden model and requires special handling.

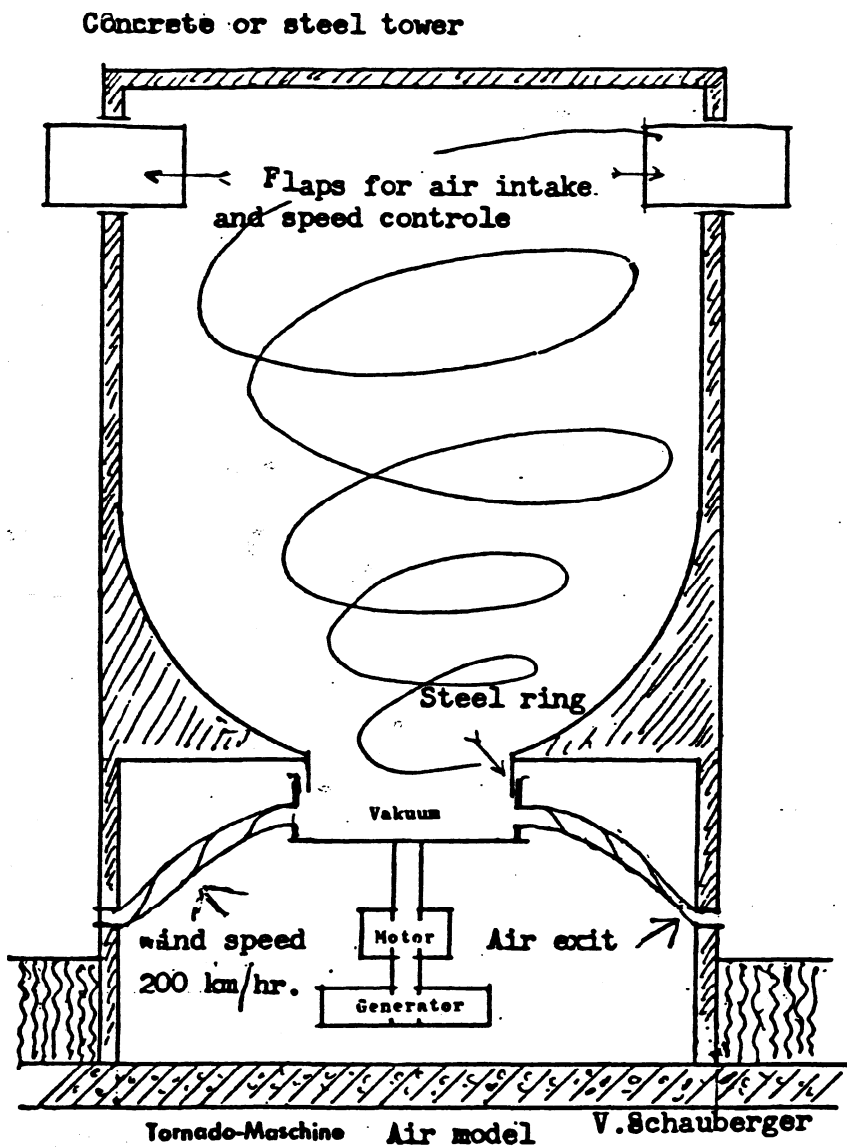
First, it will be covered with a kind of epoxy or something similar in which powdered copper has been mixed. The second coat is made of layers of fibreglass tapes to reinforce it since it will be the wall of the pipe. Another coat of epoxy or other strong material finishes the product. After all coats have hardened a little heat makes the wax flow out and the spiral pipe is completed. And what is the status of power plants in America?

#### ONE MILLION WATTS WITH A TORNADO MACHINE

Victor Schaubberger's friends have not forgotten the bad experience he had in the U.S. Since his plans and models remained here, they keep a watchful eye across the Big Pond for any news about related inventions. Special attention was given to a newspaper report about an American engineer who suggested using wind energy by creating a man-made whirlwind in a silo-like tower. Ing. James Yen, working for the Grumman Aerospace corporation, estimates that a turbine of only six feet in diameter could deliver two million watts. It would take a conventional turbine measuring 200 feet in diameter to produce the

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same results The silo-like tower is steady, has an open top and is open on one side. The wind enters the tower through the wing-like opening, starts a whirl and this, in turn, reduces the atmospheric pressure in the center. A vacuum is created, forcing air through the turbine. The sucked air makes it spin. Mr. Yen expects much from the comparably small turbine. Experiments in wind channels confirm his theory. He is confident that it would be possible to build whirlwind generators with a capacity of 100 and even 1000 megawatts. Let us hope the atomic age is over soon!



Fibreglass Pipe

## NATURE WAS MY TEACHER

By Victor Schauburger

Translated From The German By Albert Zock

With Added Comment

The coat of arms of the Schauburger family showed a broken tree trunk with a dogrose wound around it. Their motto was: "Fidus In Silvis Silentibus" (Loyalty to the silent forest). As the last of the Schauburger robber knights were captured, the older one was beheaded and the younger one pardoned and exiled into the wild, deep forest.

He settled on the Plockenstein lake in the Austrian mountains, and his descendants supplied an unbroken line of gamekeepers, fishermen and forest rangers. They knew the healing power of water and the way to build irrigation ditches for nighttime use only as a method of improving yields in their fields. Even today after a storm, torrential streams lay bare an old creek bed as a witness to the art and technique the Schauburgers used to build sluices for the transportation of logs.

Their method forced the water to flow first to the left then to the right, in sinuous spirals. The expression "zykloids" was unknown to them, yet they ingeniously used this principles Through this rhythmical change of curves the logs moved in the sluice faster than the water itself and, in some places, against the law of gravity, even uphill!

"Since my childhood I wanted to be a forest ranger. After the first world war, I was able to get such a position with the Prince of Schaumburg-Lippe. He was a good man to work for, but like others in those days, the Prince had financial problems. I had submitted my plan for building a new kind of sluice to bring down the cost of transporting logs to the Management of the estate. I was rejected with the argument that beech and oak are heavier than water and, according to Archimedes' law, cannot float.

"On a hunting trip with the Princess, I told her about her husband's problems. The Princess came from a humble background. She understood the situation, listened to my plan, and decided it might help to save the estate. She knew about the attempt by the company who did the hauling to bribe me. She stopped and asked, 'How much did the company offer you?' I replied, 'Three times my yearly salary.'

" 'And how much could be saved with your new way of transportation?'

" 'Today a cord of wood costs 12 schillings and 30 thousand cords

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are moved in a year. That amounts to 360 thousand schillings.'

" 'How much would the cord cost with the new system?'

" 'One schilling, including amortization of the construction,' was my answer. The Princess agreed. The only condition I asked for was to have a free hand in the construction, taking all responsibility.

#### A COMBINATION OF VERTICAL AND HORIZONTAL CURVES

"After four months the sluice was finished and an enormous pile of wood stood at the ready. We made the attempt. A moderately heavy log was the first to go. It floated down about 300 feet and got stuck with the force of the water pushing it out of the channel. The workers were grinning. I sent them home, and sat down by the pond to gather my thoughts. Suddenly I felt a movement against my leg. I catapulted it into the pond with my cane and watched it cross the pond. Then, it hit me: how can a snake propel itself through the water without any fins? I studied its every move with my binoculars. It was turning and twisting in a combination of vertical and horizontal curves. I kept this picture in my mind till it became clear to me.

"I recalled the workers and gave them new directions. One went for nails, the other for lathes of larchwood. I promised them double pay for finishing the Job, by torchlight if necessary. It took all night to nail the lathes diagonally into the trough, especially in the curves as suggested by the movements of the snake.

"When I returned home a letter was waiting for me. The prince, his wife and a building expert would be at the sluice to examine it by 10 o'clock the next morning. When they arrived I saluted the prince and chief forester, but ignored the guest. The gate was opened, the workers started pushing some medium-sized logs into the trough, leaving the larger ones aside.

" 'No, no,' said the chief forester, 'take that one.' I nodded my assent. Slowly the heavy log entered the sluice gate and blocked it, causing the water to rise. No one said a word. All eyes hung on the log expecting the rising water to overflow at any moment. Suddenly, there was a gurgling sound; the heavy log turned first right, then left, then twisting like a snake, floated past with its front end up in the air to finally disappear smoothly around the next bend. The float-master took the chewing tobacco out of his mouth and said, 'Kiss my \_\_\_\_\_, it works!'

"I took my rifle and went into the forest. Once out of sight, I sat down on a stump with the rifle and cane between my legs, wiping the cold sweat off my forehead. Never again, I thought. Had I not had the encounter with the snake at a most fortuitous moment, I would not be alive today. (Probably failure would have driven Schauburger to suicide, not uncommon in his day and circumstances.)

"After a few days I was informed that I would henceforth be managing the entire forest. Experts and specialists started to visit

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us, even the Secretary of State. Soon afterwards I was appointed to the Department of Agriculture in Vienna. From the day I promised the Princess to build that sluice I never had any peace!

"The sluice came very near not to being built at all, however. The chief forester came to me one day with an order to stop construction on the dam. I had to show my plans and explain them, as no one could believe that the 55 foot high dam could hold the water. Everyone was afraid that it would collapse under the pressure due to the weakness of the walls. Eventually, I realized the real intention was to prevent construction of the sluice.

#### THE MOMENT OF TRIUMPH

"I walked over to the middle of the dam and fired both barrels of my rifle upstream. This was the signal for an assistant standing above to open the gate and let the water in. The Commissioners thought I had lost my mind and had preferred to use my rifle than to answer their questions. Suddenly there was a roar. I pointed upstream wherefrom a mass of brown water 18 feet high came down blaring and carrying wood, stumps and chunks of turf with it.

"'Good heavens, come here quickly!' shouted one of the men. Others were gesticulating wildly with their arms. I only gave them a quick glance, then bent down over the 'weak' wall against which the onrushing waters were supposed to smash any moment. The water did no such thing, however. On the contrary, the impact was weak and the first wave rebounded back uphill against the oncoming stream which caused the logs to stand up almost vertically, jumping out of the water like fish. The basin, of almost a million cubic yard capacity, was quickly filled.

"No one had the nerve to come down to me on the dam, so I went up to them. 'Well,' remarked the District Commissioner, 'more luck than brain.'

"'I think it's the other way around,' said I. I emptied my rifle and walked away. The group had a short discussion after which we were informed that there would be an inspection by experts from Vienna, even though the dam seemed to hold – but surely not for long! One week later the experts arrived and stated, after an extensive inspection, that the dam had a factor of 12 safety. In spite of their calculations they were puzzled by many questions. I had the basin filled once more to give them a demonstration. As the water came in I pointed out its behavior, that is how it recoiled against itself thereby breaking its own momentum. The idea for the shape of the dam had come not from technical books or schools but from your everyday chicken egg!

"On my first Job as a graduate forester I spent my spare time at a mountain lake fishing or duck hunting from a boat. My greatest wish was to shoot the giant fish eagle. Every evening he circled high over the water, suddenly falling down like a rock. The next moment he would be up and away with large fish in his claws. How he could catch fish without touching the water was a mystery. For

a long time I remained mystified. Obviously, careful observation was required. Equipped with good binoculars I took up position in a tall tree on the highest side of the lake, from where I could keep a watchful eye on both the eagle and the fish in the lake.

#### A PYRAMID OF SPIRALS

"Almost at the same moment, the eagle appeared. He circled with loud screams over the spot where the fish was, flying low and clapping its wings strongly as if trying to attract attention to itself. Next, it rose almost vertically in ever decreasing spirals. Then, it let itself fall like a rock, legs extended, toward the fish. As it reached the water it broke its fall with a strong flap of the wings and, the next moment, was holding a large fish in its claws\* Heavily laden it flew toward the forest and disappeared. I was so fascinated I only paid attention to the bird, but promised myself that next time I would pay attention to the fish.

"The eagle came back, announcing his arrival loudly as usual, and drew his ever decreasing spiral upon recovering altitude. What happened next was so unbelievable that I lost my balance and almost fell out of the tree for having imitated what I saw. Fish in the lake were spiralling upward just like the bird above! They were one after the other, like pearls on a string, coming always closer to the surface. Because the spiral was becoming smaller, some of the fish were crowded together which caused their first dorsal fins to protrude from the water. A dark shadow fell over the spot, a little flash, and the eagle took off with its prey.

#### NEUTRALIZING GRAVITY WITH LENTICULAR FLOW

"It was spawning time. I took my post, on a clear moonlight night, close to a waterfall hoping to catch a fish poacher. I could see every move of the fish in the crystal-clear water. Suddenly, the fish moved toward the sides. A very large trout had come upstream. It swam along the fall as if in search of something, its motion like a winding dance, then finally disappeared beneath what looked like a sheet of glimmering metal under the moonlight. I noticed there was a whirlpool at the foot of the narrowing waterfall. The trout floated out of this vortex and up the waterfall as if drawn by an invisible force.

"Once at the crest, it was pushed out of the water and landed a few yards upstream. I was so excited by what I had seen I forgot all about the poacher and went home to think about it. I saw this phenomenon many times after that, but no scientist could give me an explanation.

"Later in the same winter I shot an alpine goat across a deep ravine. It slipped and fell down into the ravine. I could hear it bouncing over the ice on the frozen river below. I was unhappy about this as I expected the horns to be broken. Slowly I made my way down the icy slope. To my pleasurable surprise the goat was intact and dry. After cleaning it out, I threw the guts into the

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water which was calm at that spot, as well as crystal-clear and six to eight feet deep. I watched them sink and noticed some movement between the stones on the bottom. Although some were size of a man's head, they moved to and fro as if they were electrically charged. Defying the laws of gravity they went from side to side as if alternatively attracted and repulsed by one another. I began to doubt my own eyes as a stone the size of a man's head spun then floated upward. It was egg-shaped.

"The next moment it was floating on the surface surrounded by a ring of open water and tossing gently. There followed another and another, until most of the egg-shaped stones were floating. Only the smooth, ovoid stones had this property, the angular ones remained motionless at the bottom. My first thought was that they must be electrically charged as this phenomenon reminded me of the light which appears under water when milky hued pebbles rub against each other.

"I didn't know at that time that a number of forces were at work to create a light effect as well as overcome the laws of gravity to bring these stones to the surface. I crossed the newly formed bridge and went home. Years later I learned that the Ankara river which originates in Lake Baikal in Central Russia is the site of a similar phenomenon, which makes it possible for the local farmers to cross the river in winter.

#### A LAKE RECREATES ITSELF

"Remarkable phenomena can be observed on the Lakes of Desolation in the Hartzau valley of Austria, after a long hot spell. I was sitting on the shore of such a lake on a hot day wondering whether to go for a swim when I noticed that the water started to move in a circle. Trees which had been imbedded in the sand after a landslide were pulled loose and carried away by the merry-go-round. As the speed of the circling water increased, the floating debris moved closer and faster toward the middle of the lake. Once they reached the center, the trunks tilted upward and were sucked in with great force so the shores were cleaned like a peeled banana -- or like people whom a cyclone sets back down on earth almost naked. None of the trees resurfaced.

"Shortly afterward the lake calmed down. This, however, was only the calm before the storm. The bottom of the lake started rumbling and suddenly a spout as high as a house shot up out of its center with a thundering noise, spinning upon itself and overflowing from the top like a fountain. A short while later the spout collapsed sending waves to splash against the shore. I had witnessed the renewal of a lake devoid of fresh water tributaries.

Here ends Viktor Schaubberger's personal report. His discoveries represent only a fraction of the many ways Mother Nature uses a spiral combined with an egg shape. The expression "the egg of Columbus" should be "the egg of Viktor Schaubberger. After all, Columbus made the egg stand, but Schaubberger made the egg outstanding!

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## UPSETTING MEDICAL ORTHODOXY

"The uterus, for instance, is egg-shaped. To many scientists it is now obvious that the uterus, because of its shape, is sucking the egg through the Fallopian tube and not, as believed by orthodoxy the Fallopian tube conveying it downward. Similarly, William Harvey's theory of 1618 that the heart is pumping the blood through the body no longer holds water. Some medical scientists recognized long ago that the blood is making the heart contract and not vice versa. This was corroborated as far back as 1892 by Dr. Karl Schmidt and 1927 by Dr. Martin Mendelson, by cardiologists Harlicek in 1937 and Genta in 1958, as well as Dr. W. Simonis in 1970. Everyone knowledgeable about the function of the heart realizes how little it can be compared with a pump.

Embryologie teaches that there is at first a primary fluid circulation within the tissue of the embryo and, much later, the heart starts to form. The tender cardiac valves have only a thickness of .15 mm Hg (about 4 inches of mercury); they are completely passive; there is no sign of an active pump. Suction, because of the egg shape, does most of the work, or better, implosion. It is a kind of ram pump and no more.

The Japanese, K. Nishi, points out that the red blood cells could never be pushed through the fine capillaries since some of them have a much smaller diameter than the red blood cells themselves. Amending the theory concerning the functioning of the heart would lead to better diagnosis and therapy.

### A HEART-LIKE CONTAINER

Dr. Karl Roller had a problem mixing drugs. He did not want to apply centrifugal force. Schauburger, whom he consulted, suggested that the liquid be shaken instead of the container.

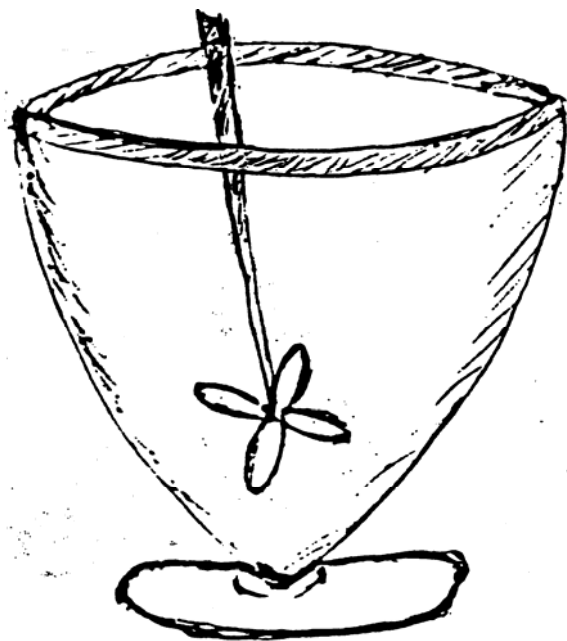
"You have to build a heart-like container

with a small, two-armed propeller on the bottom. Then you have the reversed movement." Replied Roller, "But then you'll have a centrifugal force again."

"Yes," said Schauburger, "but that will bring into play a suction in the middle of the container." It shouldn't be necessary to have the propeller built into the bowl; one driven by an electric drill, like that used to stir paint should do. Dr. Roller remembered an experiment made by Dr. Rudolph Steiner on conserving plant juice without alcohol by using rhythm on rose petals and distilled water in a heart-shaped bowl, and having his wife swirl the contents to create a whirlpool, each morning and evening. (To be concluded

in the next Journal.)

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## NATURE WAS MY TEACHER

By Victor Schauburger

Translated From The German By Albert Zock

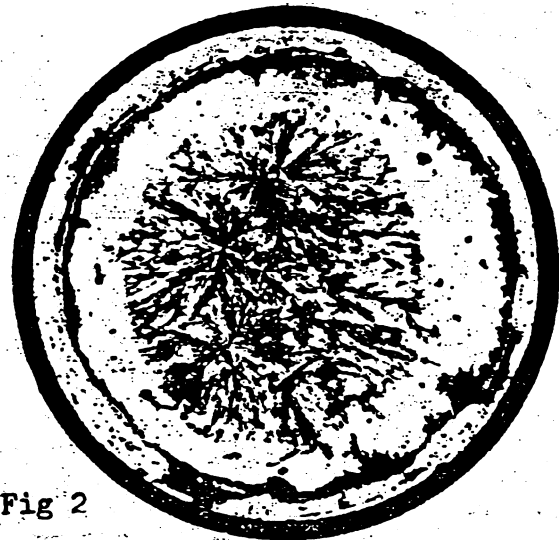
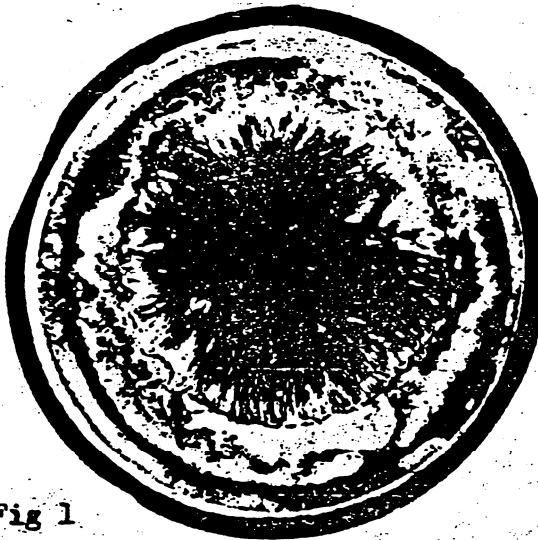
With Added Comment, Part II

Dr. Roller remember an experiment an experiment made by Dr. Rudolph Steiner on conserving plant juice without alcohol by using rhythm. He made a bowl in a heart shape and put in some rose petals and distilled water. The water became red from the petals and scented. Each morning and evening his wife would swirl the contents of the bowl to create a whirlpool at the center. Seven? years later the liquid was still fresh; it looked like an old Greek wine, and that without any preservatives, although the scent was lost.

Now we can understand how a lake without fresh water ingress can rejuvenate itself by creating its own implosion. Ordinary tap water will show improvement as well as distilled water. Laboratory examination does not show the energization of the water, but only a few changes:

	Tap Water Untreated	Tap Water After Swirling
Ph	7.15	7.195
Oxygen	9.36 mg/l	9.70 mg/l

an oxygen increase of 0.34 mg/l or 3.6%. But how can we know there is an improvement? The following method makes it possible to see qualitative changes. To one part of copper chloride ( $\text{CuCl}_2$ ) add



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6-7 part water. Put on a glass slide so that it can be projected and magnified on a screen. Let dry at 64-68° (18-20°C), then observe the crystallization. Spring and spiral-treated water look identical but tap water is cloudy. Fig. 1 shows a 20% copper chloride solution; beside chaos there isn't much to see. Fig. 2 is a 5% solution and not very promising either. But if we add, as in Fig. 3, only a few drops of fruit juice to it, there is a change in the crystal formation. There is beauty. Fig. 4 contains distilled water and Fig. 5 shows the same distilled water treated in the egg-shaped bowl; substantiation has taken place. There is life in the water instead of chaos. You see an eccentric point from which rays are emitted. You can get the same result by using a few drops of healthy blood, as in Fig. 6. The District of Kiel in West Germany uses this method to determine the quality of milk. The test can show whether the animal was fed with organically grown fodder or not. This method may be the answer to the borderlander's attempt to show visible proof of the influence of generators, radionics, pyramids, cones, ELF wave devices, etc.

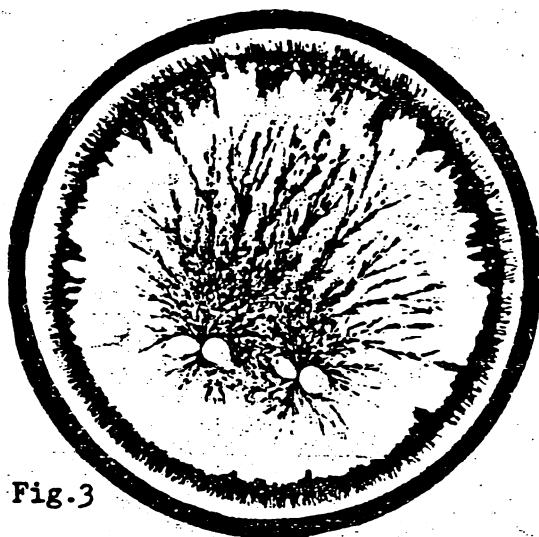


Fig.3

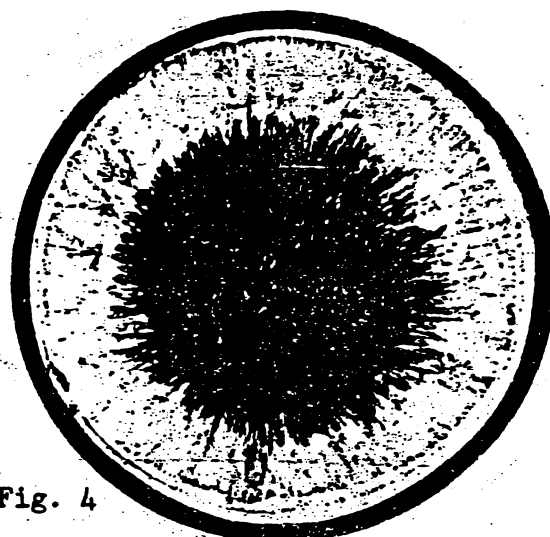


Fig. 4

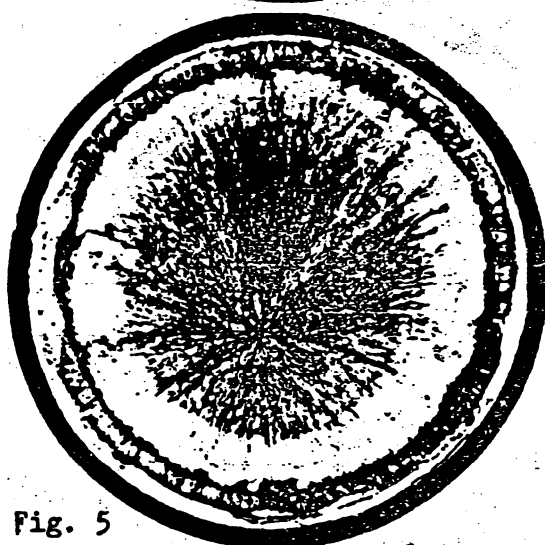


Fig. 5

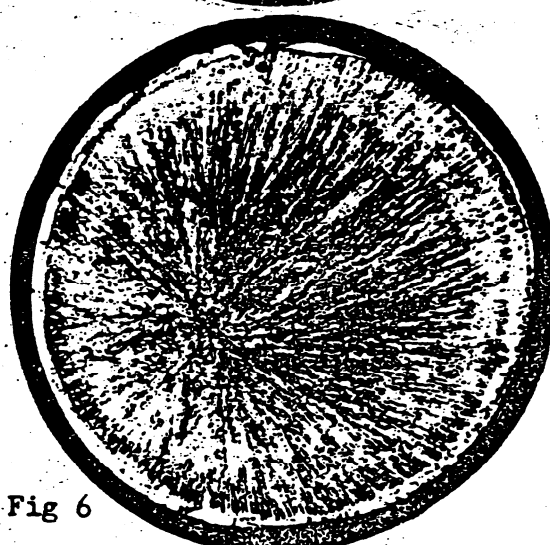
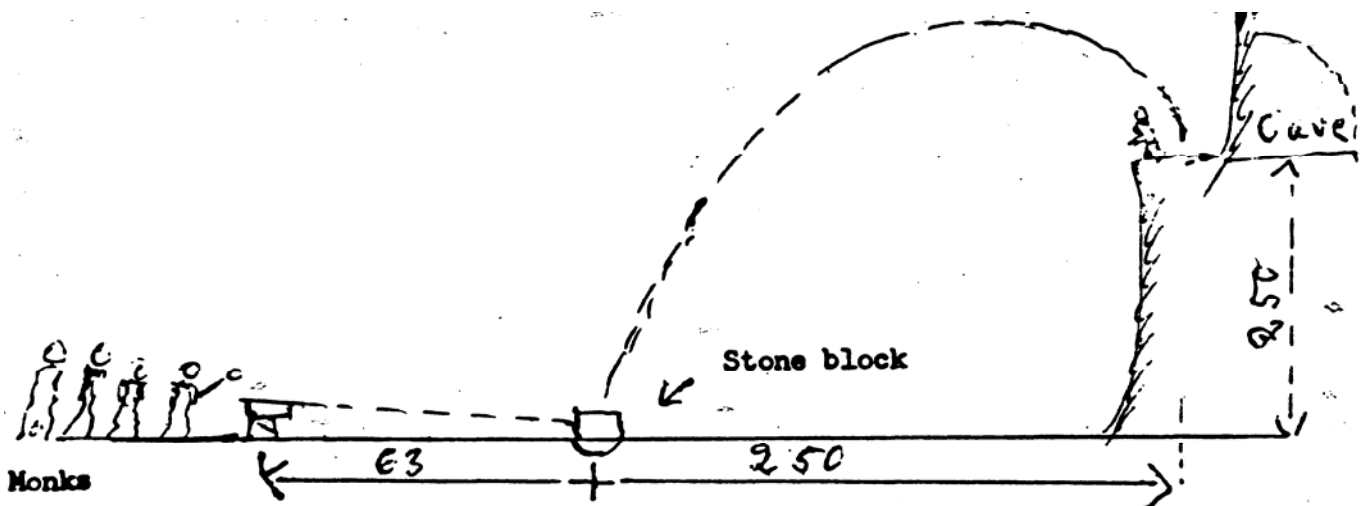


Fig 6

## THE CONDENSING PRINCIPLE FOR LIFT

Even for the readers familiar with borderland research, the thought of a stone floating on water is hard to accept. We have been taught that what goes up must come down and that there is no escape from gravity. But is it so? Gravity can only be efficacious where the envelope around the object, air or water, is lighter or thinner than the matter itself. Any object will start to hover as you compress, that is, condense, its envelope. This is where Archimedes' law comes in. If we put an egg in a glass of water it will sink to the bottom. Now add salt to the water and when the salt is dissolved, the egg rises and surfaces. Where is the gravity effect? The water surrounding the egg has become more dense. The envelope can be saturated in more than one way to achieve uplifting. For example, on a cold winter night the water in mountain streams is cold and that makes it dense.

When Dr. Jarl, M.D. studied at Oxford he had the friendship of a Tibetan student. Years later, during a journey to Egypt, he met his old friend again and was invited to spend some time in Tibet, which he did. One day his friend took him to a place near a cloister where construction was in progress. In a steep cliff, 250 meters above ground there was a cave.



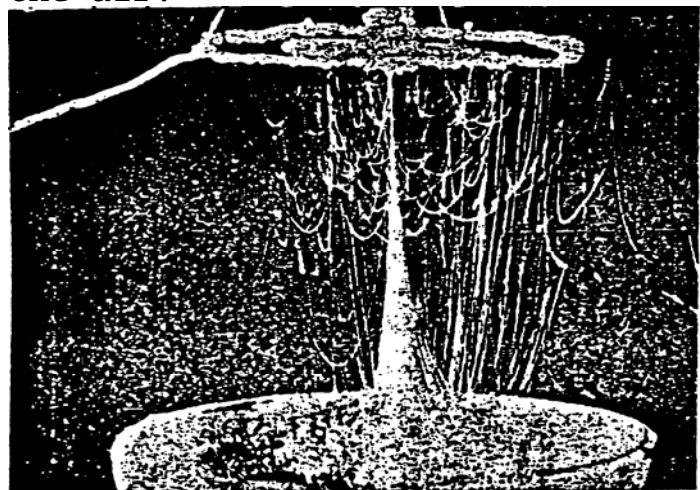
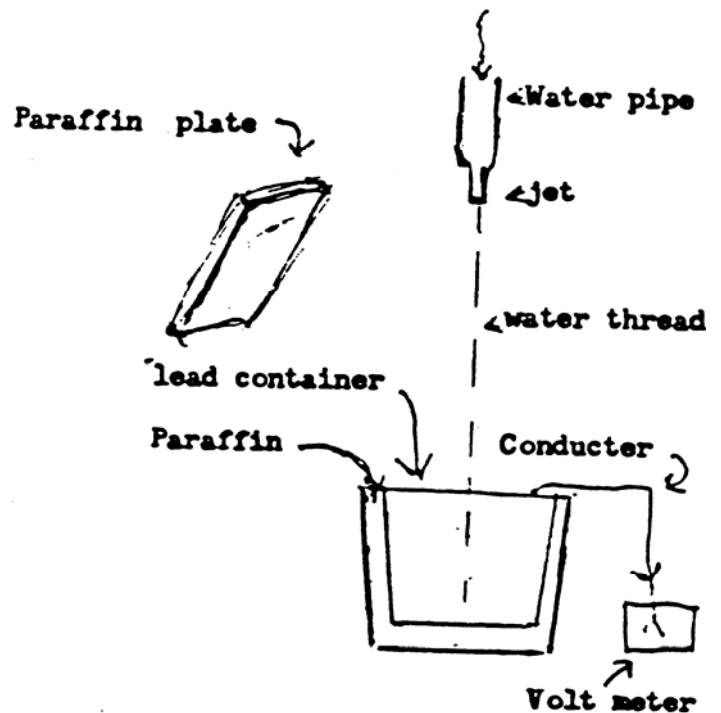
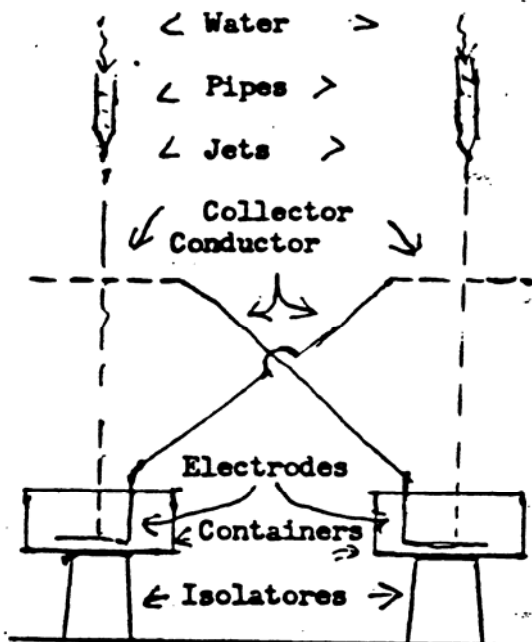
Monks were busy building a wall on a small plateau in front of the cave. The spot could only be reached from the top of the cliff with the help of a rope. On the ground below lay a smooth, flat stone with a depression in its center, one meter across by 15 centimeters deep. A stone block about 1x1 1/2 meters was put in the bowl. At a distance of 63 meters from the bowl 19 musical instruments (ragdongs) were placed side by side in a 90° arc. The radius of 63 meters had been carefully measured. The instruments consisted of 13 drums and 6 trumpets. Eight of the drums were 1 meter wide and 1.5 meters long. Four were medium-sized, 0.7x1m. The only small one was 0.2x0.3m. They were made from thick sheet metal, 3mm thick, weighed 150 Kg each and one end was open. Behind the instruments stood a row of monks, as shown in the drawing on the next page.



A pressure of 5 atmospheres (73psi) forced tap water down a pipe. The jet at the bottom of the pipe had a diameter of about 0.2-0.3mm. The higher the pressure the better the result. About 30-40cm beneath the jet a metal container insulated on the outside with paraffin (overlapping the top edge) was placed; it is important to have the container isolated against ground. A wire led from the container to an electroscope.

When a paraffin plate was held in an angle a short distance from the thin water thread, the electrometer registered a charge of 10,000 volts! Connecting the wire to a neon tube would make it glow. A question arose: Why must the paraffin plate be at a certain angle? Later a Swedish research group extended this experiment by using a second jet at a distance of 60 cm

from the first. The result was a double charge. This was accomplished by crossing isolated conductors from one water thread to the container of the other and vice versa. The loop through which the water thread goes must be horizontal and at a certain height, to be found by experimentation. Then came a big surprise: as soon as the static electricity field had reached a certain density, the water thread beneath the loop split and each single thread of water reversed its course and rose upward. Even with 73psi pressure behind it, the water had lost its heaviness and danced around in the air.



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## DIFFUSION a la VIKTOR SCHAUBERGER

by Albert Zock

Viktor Schauburger, inventor of the implosion - generator had no doubt the Atlanteans knew the catalistic secret and therefore had silent airplanes.

He was fascinated by flying and even more by the gliding of birds high in the sky with no obvious physical effort. He also observed a similar phenomenon in mountain streams where trouts could stand motionless in a strong current, and, if disturbed, would shoot, like an arrow, not to one side, but strait ahead into the stream. Did he ever find an explanation?

There are other phenomena as well. Rivers in some places in Europe literally flow up hill. One such river is in the Tatra Mountains located in the Balkas. On a stretch of 15 Kilometers the river climbs 64 meters. Reports in the media about such striking occurrences are ignored by science, because no explanation can be given, and deeper investigation might result in a collapse of the well established "Law of Gravity".

In the opinion of Viktor Schauburger such phenomena as climbing rivers is related to the motions of birds and trouts and its explanation could revolutionize our science and if properly handled, could cut energy cost to almost nothing.

### THE TRANSFORMING MEDIUM OF WATER

In his view, science made a big mistake by describing water as  $H_2O$ . If water could be put into a formula, it should read: Water is an ideal medium for transformation into an accumulator or transformer, and only the way it is moved determines whether it will be magnetic or electric. Such currents are of organic origin and decompose water into its basic substance (Hydrogen - Carbon - Oxygen)  $H-C-O$ .

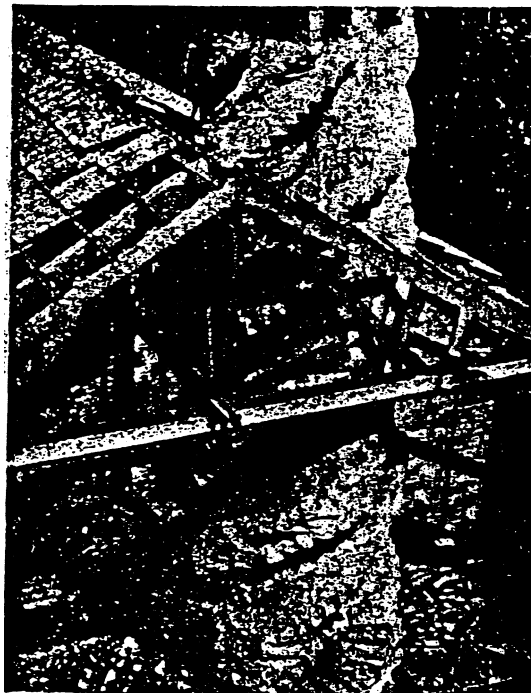
Under certain conditions, its carbon (C) unites with the oxygen (O) to form organic electricity. The freed hydrogen (H) shoots upward, spinning, attracting and absorbing the missing C & O from its environment and forms water again. If we break this tornado with a propeller or turbine, mounted within a pipe of proper dimension, the result will be that 4000 liters of air per second rushing with a speed of 200 kilometers per hour, will

yield a force of 1000 horse-power, but only 4 horse-power are needed to break up 4000 liters of air. The remaining 996 hp. are free energy. This phenomenon is based on thermoelectric forces such as in cyclones or tornadoes which can be observed. Such implosion processes can be duplicated in small machines that give enormous power.

Similar reactions take place in the lungs of birds and in the gills of fish. The absorbed air or water touches organic catalysts which diffuse it; the split-off hydrogen acts like a magnet on the carbon and oxygen surrounding it, diffusing it in such a manner that in front of the opening of a machine, or the mouth of a bird or fish, the pressure sinks below 100 mm, leaving a vacuum which will push an airplane, bird or fish, forward.

The disaster in the thirties of the American airship, "Acron," and the German airship, "Hindenburg," have probably been caused by diffusion of their gases. The Acron was filled with helium and its diffusion causes rain, where as hydrogen turns into fire(Hindenburg). An analogue to the helium synthesis can be found in the natural process of rain.

At that time people did not pay much attention to this, since 50 years ago these analytic kinds of synthesis was almost unknown.



A chimney lifter the Schauburger principle

## INTEGRATION OF THE LIFELOOD OF THE EARTH

By Ellen V. Wilmont Ware  
From "PENDULUM" A Monthly Review of  
Radiesthesia, Vol. A NO. 2, November 1953

Readers of the "Pendulum" who are also readers of "Country Living Books," "Trees," "Rural Economy," the "Soil Magazine" or "Organic Husbandry," may remember my writings on the discovery of an ancient system of Land Water Control, the introduction of which has invariably been followed by an amazing improvement in health and fertility (both animal and vegetable) in the areas concerned.

"What gave you the idea in the first place?", I am constantly asked, in conversation. I can only reply in the words of a famous scientist, "Ideas come out of space!"

The idea, upon which my work has been based, is as follows: "That it is possible to induce rainfall, as it touches the earth, to commence to move towards specially prepared focal points, where it will commence to spiral downwards, to replenish underground streams and centres of moving water, beneath the earth's surface; instead of streaming off, on. or near, the surface of the land; filling the surface water channels far too rapidly and causing mud and floods to make their appearance."

### ANCIENT KNOWLEDGE

- This idea was quickly followed by the amazing discovery that the idea had evidently been in the minds of the ancient agriculturists, who first brought these islands (British Isles) to fertility, out of swamp and forest!

Not only here, in this Gloucestershire valley, but all over England, and in parts of Wales too, there are to be found the necessary earthworks and the chequer-board pattern of field and pasture, which are parts of the System; although, now, completely prevented from functioning by the application of modern ideas of Land Drainage.

Modern Drainage increases the rate of surface run-off, and prevents the far more rapid inward rotational movement. No puddles form where inward rotation of water is functioning; and in such areas there is no mud! Earth and water become permanently dissociated and air takes the place of stagnant water in the soil, wherever rainwater is allowed to percolate the earth with a natural inward spiral movement. This action can be induced by man, and adapted in accordance with his needs.

The radiesthetist will be, it seems certain, most interested in that part of the discovery which is connected with the incidence

of disease; and of the effects on disease which follow the introduction of this method of Land Water Control in any given area.

#### NEW LIFE IN THE VALLEY

In Farts of this valley, where I have not yet been permitted to set the System working, many dead and dying trees are to be seen. In areas where the ancient focal spots have been once more set to work, the diseased limbs, and the cankered bark of the trees, have all been shed, or smothered in new, healthy growth.

The corky excrescences which covered the twigs and branches of of the elm trees, immediately began to shrivel up, and then to drop off, once the water of an area had started to move spirally inwards. Where, before, there were diseased growths, now there may be seen shining, healthy tissue, full of lenticels and growing at a rapid pace. The elm leaves may have been not much bigger than one's thumb nail, but now there will come, on the younger elm branches, large, tender, bright green leaves, which might be mistaken for nut leaves.

Willow trees - old and pollarded - may have been falling apart, riddled with the tiny holes of parasites. Now "new trees" will take their place. The splits are actually mended by new tissue which grows rapidly up the edges of the split portions, reuniting them and enabling the tree to take on the appearance of a new one, as new bark covers the whole area in succeeding years.

In our valley, the waterside rushes, which, formerly, grew for awhile and then turned yellow and died away, now grow right up to flower and fruit!

As for the rushes in the boggy valley pastures - where are they?

The little acre known as "Poor Land" or the "Parish Field," which I rent from the Parish Council, was, when I took it over, in January 1939, a mass of rushes and water weeds. Some, then called it "Rushy Meadow." Now, there is not a rush to be seen! The rushes have been grazed to extinction by my farm animals, which, previously would eat but little of the sour herbage of this low lying pasture; which, nearly every winter, disappears for a while under many feet of Severn floods, which sweep across the three-mile-wide Valley; which is believed to have been, in previous days "less subject to waters." (vide the 16th century historian Leland).

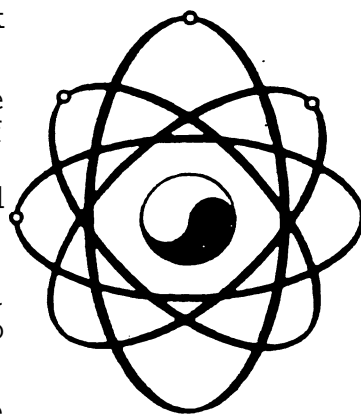
#### THE HUMAN LINK

What place have human beings in this long-forgotten System, which I have re-discovered?

We have no "roots" like plants. We, and the animals, move from place to place. We, and they, may gain great benefit from eating produce which is obviously more healthy; from the new-textured, sweet-smelling, and richly-coloured soil which is now to be seen wherever the System is working.

Is there more than this? I think there is.

In this System, allowance is made for tidal movements in the waters of the earth - the rhythmic "back-and-forth" of free water, which may be observed on the surface of the sea, but which, manifestly, cannot end at the sea shore. This movement must extend throughout the earth's surface, and outwards into space, also.



Much is written regarding the "stress" of modern times. I am convinced that much of this stress is connected with that unremitting onward "forward-traction" of the waters of the countryside - as though the "arteries" of the earth had been severed, while the "veins" had long since ceased to function!

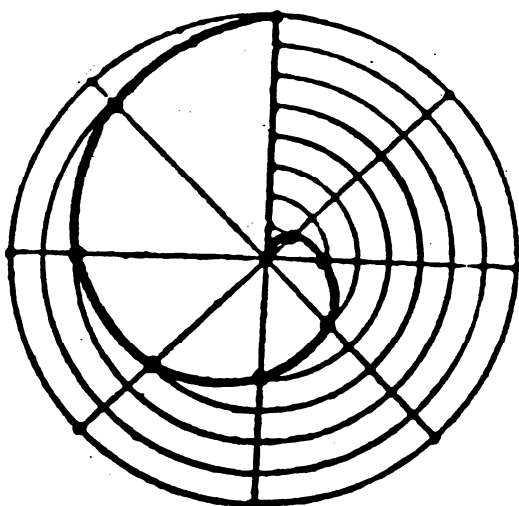
#### COSMIC INTERCONNECTIONS

I look upon the Moon as having a similar function with regard to the Earth, as the Heart of man has with regard to his Body.

In this connection, it is interesting to note that the Ancient Chaldeans of Ur, (who, it seems probable, understood the principles which I have rediscovered) accounted the "Goddess of Fertility" to be none other than "Nin-Gal" the Goddess of the Moon!

There should be, I am convinced, (by practical experiment) a possibility for the earth's waters to draw back and forth, as well as on and on!

It also seems probable to me, that cosmic rays, coming out of space, need a healthy, and balanced environment in which to work naturally, - and therefore beneficently in the service of mankind.



May it not be during sleep (when we are, as it were, "rooted to an area"), that the influences which spell the difference between health and disease are at their strongest - for we, as we rebuild our defences during rest, are then surely, most subject to external influences?

#### SECRETS OF THE SYSTEM

What are the secrets of this new (or very old) System? What are we to do, that we may start the System at once? Can we start in our own gardens? Yes, we can!

We cannot, however, get full results until the "Powers that Be" in Land Drainage, see the light also.

"We are under Whitehall," I have been told by Land Drainage engineers. "We are paid for our work and we must do as we are told. We can see that you have changed the texture of the soil. We know you are right, but - the Ministry of Agriculture says that all rivers and streams must flow straight to the sea; and dams of earth and stone are not permissible, according to modern drainage ideas!"

In our gardens, we may begin, however. That circular flower bed is the focal point. Make it, first, a "saucer," - a depression - made firm with a few stones in the centre. Then, on the "saucer," place a mound of earth. In the surface of this mound you will set your plants and seeds. Mound it as high as possible by adding humus to lighten the soil. Mound your flower borders also. Never let them be flat. Air pressure will then drive the rainfall towards the "cores" of the flower beds and flower borders. Thence it will spiral downwards.

You will have started inward rotation\* In time, no doubt, others will follow!

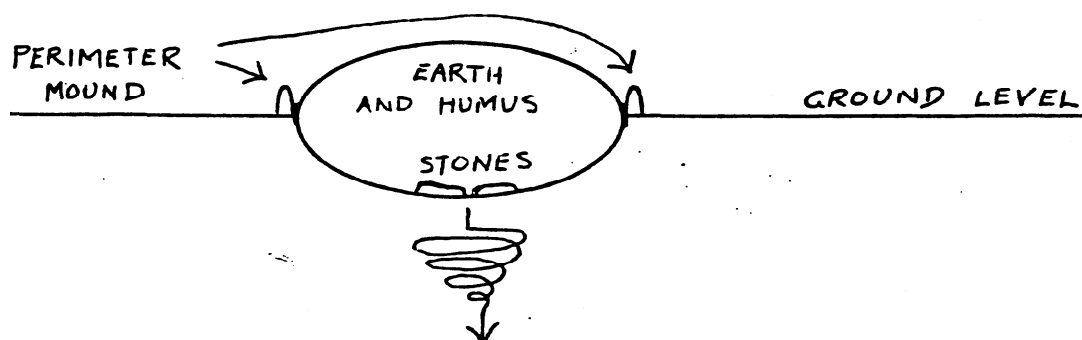
"For as the rain cometh down, and the snow from heaven, and re- turneth not thither, but watereth the earth, and maketh it bring forth and bud, that it may give seed to the sower and bread to the eater\*

"So shall My Word be that goeth forth out of My Mouth; it shall not return unto Me void, but it shall accomplish that which I please, and it shall prosper in the thing whereto I sent it.

"For ye shall go out with joy, and be led forth with peace: the mountains and the hills shall break forth before you into a singing, and all the trees of the field shall clap their hands\*

"Instead of the thorn shall come up the fir tree, and instead of the brier shall come up the myrtle tree: and it shall be to the Lord for a Name, for an everlasting sign, that shall not be cut off."

(The ideas of the author have some resemblance to those of Dr. Schauberger but were evolved separately over a period of years. The principle enunciated should be capable of being followed with ease overseas where Ministerial interference with agriculture is less evident. Egerton Sykes, Editor - PENDULUM 1953;



# APPENDIX

## Viktor Schauberger's Flying Saucer Research by Hellmut Hoffman, translated by Callum Coats

### What Happened to the Production Drawings?

It only became known after the war, that aircraft resembling Schauberger's prototype had been further developed in several other production workshops. The most informative data about this is without doubt the report by Hermann Klaas, an engineer from Muhlheim in the Ruhr, who had collaborated on the plans and who at the time had published a detailed report, complete with photocopies of sketches and original documents, in the Wuppertal paper, Bergische Wochenpost (ceased publication): "I still have drawings of a model "flying disc" which I built in 1941; perfected by the Germans, in all truth this invention flew with almost unbelievable success. It had a diameter of 2.4 metres with a small, very fast running special electric motor (there were no petrol-engined models at that time), which had been "obtained" by courtesy of the Luftwaffe. It climbed straight up into the air so suddenly that unfortunately it hit the workshop ceiling and crashed to the ground in pieces.

The model which actually flew can be seen in the accompanying pictures (shown on p. 94) and also those versions begun firstly in Bohemia and later in Breslau (where the Miethe group worked), which embodied a stronger ramjet-pipe (like the VI rockets). The three models approximate the Ballenro-Schriever-Habermohl prototype, even as far as the incorporation of the jet nozzles. The jets must be able to swivel in order to achieve the "colloidal effect", which enables the "flying disc" to climb vertically (Miethe built better models later on). On the first model, and also on the other models, the outer rim, made of high-grade metal alloys, was solid (without vents).

When this disc had gained height or had attained the desired altitude so that the thrust from the rear exhaust nozzles began to take effect, the disc transferred from vertical to horizontal flight. Naturally this control system was not simple. It was only on later designs that the "slotted rim" was incorporated, so that the jets could be swivelled in all directions. These flying discs are today being built not only in the West, but also in the U.S.S.R.

There was, of course, a whole range of further designs, though unfortunately no entirely completed prototypes. In the beginning neither



Miethe nor Habermohl could get hold of a simple jet pipe. It could only be "supplied" via the agency of a Luftwaffe sergeant"

### The "Flying Saucers" of the Third Reich

Years later, on the 27 th July 1956, the Munich periodical *Das Neue Zeitalter* published an article headed "Hitler built Flying Saucers" ... "The Austrian forester Viktor Schauberger was the inventor and discoverer of this new motive power - implosion, which, with the use of only air and water, generated light, heat and motion. In the implosion-motor a diamagnetism was developed which made the lifting power possible By means of a suction screw-impeller, which revolved from the outside towards the inside along a cycloid spiral space-curve, the same force is generated which creates waterspouts, typhoons, cyclones or hurricanes through the effect of suction. On the 19th February 1945 near Prague, the first test of an unmanned "flying disc" took place. In three minutes it climbed to a height of 15,000 metres and attained a horizontal speed of 2,200 km/h; it could hover motionless in the air and could fly as fast backwards as forwards- This "flying disc" had a diameter of 50 metres."

On the 14th of August 1956, volume 31, the *Munchener Illustrierte* printed an article in which engineer Rene Couzinet's wooden model was displayed, whose external appearance was similar to Schauberger's design. Apparently, however, Couzinet was still far from achieving a working model, for Schauberger commented on the article in a letter dated 11/8/56 as follows: "One look (at the model) told me that the man is still miles away from the achievement of diamagnetic levitation power, for Couzinet has probably employed the effect of direct suction, whereas Nature uses indirect, i.e. reactionary suction force ... what various papers have published is also incorrect, namely that I might have copied typhoons, cyclones, etc, which occur in warm zones."

It should be noted in passing, that judicial circles in West Germany and abroad have posed the question as to whether Hitler was able to flee to safety in such an aircraft at the end of the war. In any case, it is a proposal put forward in Mattern's book, *UFO - The Ultimate Secret Weapon of the Third Reich*.

A book by Rudolf Luser entitled *German Weapons and Secret Weapons of the 2nd World War and their Further Development*, now in its fourth edition, was published in 1962 by J.F. Lehmann in Munich. In it the author dedicated a whole chapter to the "flying saucers" of the Third Reich, wherein it was stated: "The development, which had cost millions, was almost complete by the end of the war. No doubt the existing models were destroyed, although the plant in Breslau, where Miethe worked, fell into the hands of the Russians, who removed all the material and technical personnel to Siberia, where further work on these "flying saucers" has been carried on with much success. Schriever just managed to get out of Prague in time, Habermohl, on the other hand, must be in the Soviet Union. The former German designer Miethe is in the USA and, as far as can be determined, is designing "flying saucers" for A. V. Roe & Co. The machines, which have been observed to date, have diameters in the order of 16, 42, 45 and 75 metres and they are supposed to develop a speed of up to 7,000 km/h. Already in 1952 "flying saucers" had been indisputably recognised over Korea and according to

press reports, were also observed and reported during NATO manoeuvres in Alsace in the spring of 1954."

The magazine Hobby took up the theme again in its 26th issue and quipped with the headline "When saucers learned to fly", whereas a company newspaper made reference to "Secret Service Cases". In addition, we have been presented with many other publications on this theme, some of which are highly interesting, in which there is no lack of amazing references to design drawings and models supposed to have fallen into Allied hands at the end of the war.

It would indeed require a hard-working and conscientious chronicler to sift through such a profusion of data. But, as the old saying goes, "There is no smoke without fire". Through the information supplied us by Walter Schauburger, which has provided us with much documentary evidence, much of the above will be made clear. We would, however, like to keep a certain distance from comments which reflect only isolated opinions. Everyone can draw his own conclusions from such views as have here been quoted.

In connection with many such reflections, a letter written by Viktor Schauburger to a friend on the 2nd August 1958 is very informative. The following are extracts: "The 'flying saucer' which was flight-tested on the 19th February 1945 near Prague and which attained a height of 15,000 metres in 3 minutes and a horizontal speed of 2,200 km/h, was constructed according to a model I built at Mauthausen concentration camp in collaboration with the first-class engineers and stress-analysts assigned to me from the prisoners there. It was only after the end of the war that I came to hear, through one of the workers under my direction, a Czech, that further intensive development was in progress: however, there was no answer to my enquiry. From what I understand, just before the end of the war, the machine is supposed to have been destroyed on Keitel's orders. That's the last I heard of it. In this affair, several armament specialists were also involved who appeared at the works near Prague, shortly before my return to Vienna, and asked that I demonstrate the fundamental basis of it: The creation of an atomic low-pressure zone, which (develops in seconds when either air or water is caused to move radially and axially under conditions of a falling temperature gradient."

#### The USA Intervenes

Particularly instructive is another letter by Schauburger to the same friend dated 23rd January 1958. "An American aircraft consortium offered me \$3,500,000 to divulge the secret of the UFO. to three of their experts. A similar offer was made by Canadian interests. Both groups wanted to come here to see everything . . . I answered . . . until the signing of an internationally valid provisional agreement, nothing would be demonstrated. (These gentlemen, however) wanted to see first and sign later, which I categorically rejected. From the Germans it was suggested that I should secretly act as consultant on two major government projects for which I was to receive a commensurate fee. I declined, because I did not want the secrets to be drawn out of me and then, as always happened before, to receive a kick in the pants... I am no businessman, but a simple observer of Nature who

has absolutely no contractual experience... Whenever I was overtrustful, I always had to pay for it miserably... The professors believe they are able to correct wise Nature and they do everything back to front (in relation to what Nature actually does)... And now we're all in a fine mess. I will have nothing whatsoever to do with such bankrupts."

Despite these misgivings, discussions with Bonn did, in the end, take place. Essential to these discussions, *inter alia*, was the conditions that investigations into the hydraulic processes resulting from Schauberger's research and development, including the evaluation of earlier experiments, were to be verified on a strictly scientific basis by expert opinion from the Stuttgart Institute of Technology (Technische Hochschule Stuttgart).

This report by experts was published verbatim in the quarterly magazine *Komische Evolution*, which regularly publishes the results of the latest scientific research in the sphere of Schauberger's theories and findings.

While discussions with Bonn were still under way, two representatives from the "Washington Iron Works" suddenly appeared at Schauberger's home: Messrs Karl Gerchsheimer from Texas and Norman Dodd from New York. During the American Occupation, Gerchsheimer was the US plenipotentiary for Wurzburg. He spoke fluent German with a Bavarian accent "We are here on behalf of a large American corporation whose spokesman is Robert Donner from Colorado. It is desired that Schauberger's ideas and findings be translated into fact as soon as possible in the USA. Money is available in unlimited quantity."

#### 650 Million Dollars for "Project Implosion"

Later on it became known that the 650 million dollars was supposed to have been the first installment of the committed capital, notably at a time when the value of the dollar on the international market was twice that of today. Viktor's son, Walter Schauberger, also became involved in "Project Implosion". He was supposed to contribute his knowledge and scientific co-operation to the common cause of the scheme and to be prepared for a longish sojourn in the USA accompanied by his family. From the Americans' point of view, this requirement seemed justified, for even before the beginning of the 2nd World War, Walter Schauberger had played an important role in a series of his father's fields of research. At the beginning of the War, Walter was severely wounded and having had his leg amputated, was discharged from the field hospital.

Both were opposed to an extended stay in the USA, however. In principle, they were prepared to assist for a limited period only. To clear up these and various other questions, the two Americans then returned to the USA. When they reappeared in Austria again, things really began to get moving. Very much now in evidence were the words "Top Secret", whose outward expression, *inter alia*, manifested itself in the constant care of both Schaubergers, which they, however, nevertheless experienced as a rigorous surveillance. Even clothing coupons were issued. Entry visas for the USA, for which one could often wait months in those days, were arranged within minutes and with a validity for an immediate period of four years. Thus father and son received a foretaste of the powerful arm of Uncle Sam whenever the question of dollars was involved. This first taste, however, was not to remain with them for long.

Gerchsheimer arranged for all the various records, calculations, drawings, even technical literature, together with all models, designs and pertinent apparatus, which had been collected from a variety of places, to be quickly packed into five giant, watertight containers, which were immediately despatched overseas. These days were distinguished by hectic bustle and activity and cast their shadows over the approaching difficulties in the New World.

A few days later, Viktor and Walter Schauburger were already in New York, where the US Chamber of Commerce had prepared a splendid reception followed by a banquet attended by high-ranking military personnel.

### The Situation Becomes More and More Acute

The workshops themselves were located in Texas. It later came to light that the nearest human habitation was about ten kilometres away. All mail was scrutinized by Gerchsheimer personally, and the isolation was thus complete. Eric A Boerner, formerly an engineer with the Junkers Company in Germany, but whom in the USA had been raised to the position of director of the "Cosmotron" accelerator project in Brookhaven, took part in one of the first conferences. Gerchsheimer had brought him in as an expert on questions regarding energy. At this conference Viktor Schauburger unexpectedly renewed his acquaintance with one of his former co-workers, a certain Renner from Salzburg. According to an entry in the documents related to this affair, which are in our possession, "Renner's transfer to the USA was very close to being a kidnap."

"Project Implosion can be started," Boerner declared. "Schauburger's basic considerations and ideas tally with recently ascertained facts, which, largely through the mathematical-physical endeavours and new interpretations of his son, Walter Schauburger, have been significantly extended. . . As energy is problem No. 1 for the USA, its solution requires a total commitment and that both Schauburgers remain in the USA for eight years. . . " Questions and objections were rigorously curtailed.

At a second conference, Viktor Schauburger flatly refused to stay on in the USA even one day longer than the agreed period of three months. "Otherwise I refuse to talk" he declared categorically. A third and last conference took place at which Gerchsheimer announced that it had been decided to authorize Viktor Schauburger's return journey. At the same time he handed him a contract comprising several pages in English with the request that it be signed immediately, although he well knew that Schauburger was unable to read English. "We must leave for the airport in ten minutes", urged Gerchsheimer and glanced nervously at his watch. An extremely lively argument ensued which became considerably more heated when Walter Schauburger was informed that he would in no way be permitted to return to Europe with his father. On the contrary, it was desired that he be placed under contract. Once again the tempting phrase: Money is no object.

## Wild West Methods Dominate

The Americans seemed to have entirely failed to grasp that it was precisely their Texan behaviour that so disgusted their Austrian guests. With wild threats and honeyed promises, Gerchsheimer tried to induce Walter at least to remain. When he finally realised that all his efforts were to no avail, he was quite taken aback. Meanwhile Viktor Schauburger had reached the end of his nervous tether and had signed the contract after its essential features had been orally translated for him. At that point he would have signed anything required of him, for he was motivated by one single idea: To get away from the present company and to return to Austria.

This contract, of which we have a photocopy, is a typical example of unscrupulous American insatiability. In it Viktor Schauburger not only made over to those clever Yankees all rights to his patents, but also all his ideas, thoughts and discoveries, past as well as future. Moreover, he was not even allowed to talk about them with others. This contract degraded him to an empty shell, for his brain, his intellect, aye his whole being and all his thoughts had become the "property" of that US organisation.

Apparently the enforcement of Schauburger's signature was a typical American show, for afterwards the room was suddenly filled with smiling faces. No one paid any attention to the time and all at once there was any amount of it. They only wanted to celebrate to the full the "conclusion of the agreement".

Towards midnight on the 20th September 1958, both Schaubergers finally arrived back in Linz. Then began the last 100 hours of Viktor Schauburger's life. However, no one had the slightest presentiment of it. His sudden death on the 25th September 1958 precipitated a riot of rumour that Schauburger had already been in poor health for some time before the tribulations of a long journey for this 74 year old man. No doubt the final blow was his deep disillusionment over the humiliating outcome of his American trip and above all, that fateful contract with which he had totally delivered himself up to the Americans. "I don't even own myself any longer," he said utterly dejectedly to friends a few hours before he returned to his home.

## What Did the Americans Really Want?

In the meantime, 20 years have elapsed. From the Americans nothing further has been heard, and just as little is known of "Project Implosion", which in those days is supposed to have been launched with such great élan. All the various design drawings, plans, calculations and models were left behind in the USA. The question arises; What did the Americans really want to achieve? In the final analysis, was it indeed only the "Flying Disc" project in which, long before the trip to America, the widest variety of groups on the other side of the Atlantic had already shown such surprising interest? Because Schauburger, in the face of demands for the facts, had displayed the greatest restraint, a reticence in no way diminished by offers of millions of dollars, the possibility cannot be ruled out that, by way of Schauburger's main main interest- implosion, it was hoped to reach the real goal (flying discs).

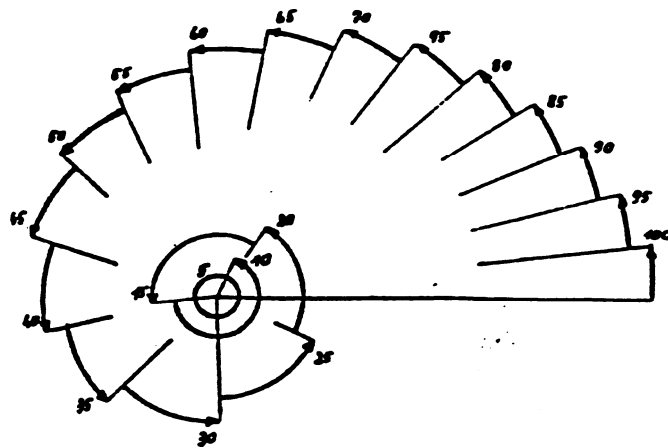
Part II

more

implosion

than

explosion



# More IMPLOSION Than EXPLOSION

Compiled by Tom Brown

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## INTRODUCTION

To begin this introduction I would like to thank the people who made this book possible. First, my wife Alison, who did an excellent review of LIVING WATER. which is probably the best book in English on Viktor Schauberger. Secondly, I wish to thank Borderland Sciences Research Associate Bodo Capeller for his great help in translating a series of articles on Schauberger from the German magazine "WELTE SPIRAL", or World Spiral. The readers of this book will be well served by their efforts.

This short book is issued in the interests of Borderland Researchers who are truth seeking in the wake of LIVING WATER and BSRF's IMPLOSION - Viktor Schauberger and the Path of Natural Energy. The promise of beneficial technology held out in those two books hits the brick wall of reality on these pages here.

For those unfamiliar with Schauberger or Implosion, the review of LIVING WATER will give a glimpse of an incredible man with an incredible vision - to give the world a proper technology in harmony with nature. The horoscope data gives us an insight of Schauberger that we have never been treated to before.

The series of articles from the German magazine "WELTE SPIRAL" is a most welcome reference for Schauberger's vision. When I first experienced Schauberger's vision, I could see how right the man was. I accepted the information without ever seeing any of the devices work. To me the photo of Schauberger's home power unit was enough. We were being gyped of our birth-right of natural energy.

This was easy enough to believe, as I could find tie-ins with other Borderland Researchers. Through Trevor James Constable's book THE COSMIC PULSE OF LIFE I was introduced to the ether physics of Rudolph Steiner. The ethers were understood as the four ancient elements - EARTH, WATER, AIR & FIRE, The ether of water is implosive and is no doubt what Schauberger was working with. Trevor shows that the water ether (or chemical ether as it is called) is functionally equivalent to Wilhelm Reich's ORGONE ENERGY. The many comparisons between Reich and Schauberger cannot be covered in this short introduction, but can be found by anyone with the gumption to pursue knowledge and study it.

IMPLOSION and LIVING WATER both carry references to the use of implosion technology for anti-gravity propulsion and we are shown pictures of Schauberger's model saucers. Again I accepted this wholeheartedly. I still agree with the principle, but still would like to see some operational equipment before I pass judgement. The serious research of T. Townsend Brown presents hard evidence that the field around a capacitor in an electric oscillating circuit is electro-gravitic in nature. Eric P. Dollard, Borderland's resident "Wireless Engineer,"

has shown through his researches with Tesla Technology that the capacitive field (which he terms the dielectric field) is implosive in nature and produces the same illumination effects as Reich's Orgone. So here we see a relationship between the implosive effects of water and the possibilities of anti-gravity; and the implosive effects of the dielectric field and the possibility of anti-gravity. Reich manipulated the Orgone streams around the earth to produce changes in the weather. Nikola Tesla was experimenting with weather engineering via his large Magnifying Transmitter at Colorado Spring. This manipulation was effected, not by ELF transmissions as is popular to believe (with no proof), but by the propagation of the dielectric field, which is the organic side of electricity and has been here shown to be in direct relationship with Orgone.

Herein reside the keys to a beneficial technology and the solution to the mechanics of anti-gravity. These matters have not really been suppressed - the teeming masses of humanity on this planet are not responsible enough, or spiritually aware enough to deal with the ramifications of universal energy and true freedom. Concerning this concept, Nikola Tesla had this to say, "I am unwilling to accord to some small-minded and jealous individuals the satisfaction of having thwarted my efforts. These men are to me nothing more than microbes of a nasty disease. My project was retarded by laws of nature. The world was not prepared for it. It was too far ahead of time. But the same laws will prevail in the end and make it a triumphal success."

This brings us to the stories of the suppression of Viktor Schauburger's technology. and the demise of his home power unit. These freshly translated articles show that the power unit never worked - in fact it exploded rather than imploded. The author of the German articles, Leobrand, can be none other than Leopold Brandstatter, author of IMPLOSION STATT EXPLOSION. As an astute student should, Leobrand carries on beyond the work of the teacher and shows the problems with Schauburger's view on flow design and such.

I now believe more firmly than ever in Schauburger's work. It can be put into the proper perspective - the balance of implosive and explosive forces, working in harmony and balance. This is the true path of natural energy - the Cosmic Pulse of Life. With this new perspective in English it is hoped that the small flame kindled here will help fan the fires of enlightened research and perhaps humanity can move in the direction of preservation of our fragile eco-sphere.

Tom Brown  
Director  
Borderland Sciences  
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September 11, 1986

# "living water"

VIKTOR SCHAUBERGER and the Secrets of Natural Energy

by Olof Alexandersson

Reviewed by Alison Davidson

"When a man dies the bell tolls. When the forest dies and with it a whole people perishes, not a finger is lifted. It is known that for the death of a people the death of a forest has proceeded it."

A hundred years ago, a man called Viktor Schauburger was born into his role as a guardian of the earth. Among the magnificent Austrian forest he grew up wanting only to become a forest warden "like my father, grandfather, great-grandfather and his father before him." But life was to take him far from the peace and solitude of great mountains. Instead he was to lead the struggle to preserve the earth, the forests and rivers, attacking the exploitation of Nature as early as the 1920's.

He gave the world a vision of how technology could be transformed to give free, unpolluting energy. He warned of the consequences facing humankind if the present death-oriented technology continues. He died, betrayed by the same powers who promised to make his dreams a reality, commercial gangsters who took all and gave nothing back to the world.

Olof Alexandersson's biography of Schauburger helps give back to us a hero, someone the authorities prefer forgotten like Reich, Tesla and others who looked to Nature to help solve the world's problems. This is the first book in English to describe Schauburger's prophetic work. But back to the story...

As a child Viktor was at home in the forest. One of his ancestors from an ancient Bavarian aristocracy moved to Austria and started a branch of the family devoted to the husbandry of the forests and their wildlife. Their motto was "Fidus in Silvis Silentibus" - Faithful to the Quiet Forests - their crest showed a tree trunk garlanded with wild roses.

From an early age Viktor was an astute observer of nature. He learned directly from nature, closely studying the relationship between the earth, the trees and water. But water "the life blood of the earth" became his consuming passion and he set out to discover its laws and characteristics - the secrets of its power.

Far from being an inorganic substance, Schauberger perceived water to be alive, and with its own cycle of birth and transformation into higher forms of energy. He spent hours studying the flow of natural waterways, how water currents become stronger in the early hours of the morning when it is coolest, and particularly during full moon.

He remembered the stories of his ancestors who utilized their knowledge of water to transport logs down from the high forested mountains. They built constructions down the mountainsides which forced the water to flow in serpent-like spirals.

"I knew that my father transported hundreds of thousands of cubic metres of beechwood over long distances, never, however, during the day, but at at nights and generally when the moon shone. The reason for doing it this way, as my father often explained, was because water exposed to the sun's rays is tired and lazy and therefore curls up and sleeps. At night, however, and especially in moon light, the water becomes fresh and lively and is able to support the logs of beech and silver fir which are in fact heavier than water."

By the end of World War 1, Schauberger was given responsibility for a large wilderness area of almost untouched forest, employed by an Austrian prince. But the prince had problems. He needed money; he needed a way to transport his timber down from the remote forest. Schauberger built water flumes based on his own observations and the knowledge of his ancestors. A water snake undulating through a dam gave Schauberger the final key to success with his flumes. By imitating its movements, a combination of vertical and horizontal curves, the water chutes carried heavy logs effortlessly. Experts came from all over Europe to study the construction, and Schauberger was offered a position with the government. He travelled all over Austria for several years supervising other constructions which were equally successful – but here Schauberger first encountered the professional jealousy and interference that was to mark his life.

He had observed how the streams reacted when the trees were cut down. No longer protected from the sun, the waterways became blocked and the springs that fed them dried up. He began to warn the authorities of the dangerous changes that occur when man disrupts the natural harmony of the forests.

But the large timber companies that sprang up everywhere, with encouragement from the state, had only one goal; to transform trees into money as quickly as possible. Schauberger's log flumes had allowed the commercial exploitation of virgin forests which had been inaccessible to the foresters and he had to witness the brutal damage done to natural forests destroyed by short-sighted greed. Angry and disillusioned, he resigned from the government and continued exploring the mysteries of water under private employment.

## WATER - THE CONTAINER OF LIFE

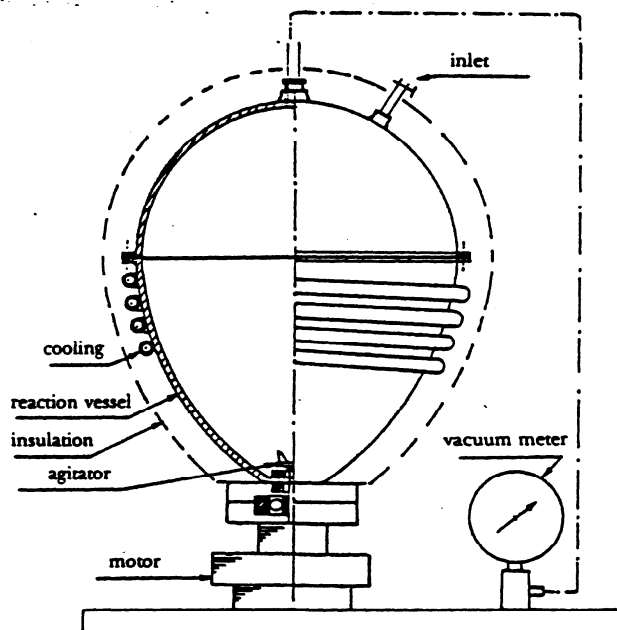
"Far back in history, there is evidence that men who have attempted to solve the riddle of water have been bitterly attacked...If the riddle surrounding the origins of water were solved, it would be possible to make as much pure water available as required in any location; in this way vast areas of desert would become fertile. The concept of unrestricted production and cheap machine power is so revolutionary, that the way of life all over the world would experience a change."

To Schauberger, the mysteries of water are similar to those of blood in the human body. In Nature, normal functions are fulfilled by water, just as blood provides many important functions for mankind.

"As long as man had not disturbed the organic balance and Mother Earth was able to donate her blood - the water - to provide a healthy vegetation, there was no need to construct artificial canals, since the earth already provided waterways. Today, however, where nearly all the healthy springs are either dried up or the water is diverted from its source and is led through badly constructed pipes, all of life is dependant upon stale and therefore unhealthy water. It is desperately important to rediscover Nature's ways if human beings, animals and the land are to be saved from decline and the earth is not to die from thirst."

He set to work to build a machine which would provide good drinking water, through copying Nature's spiral flow of energy. Rumour soon spread that Viktor Schauberger could make "living water" and people streamed to his home to try it - and with good results. He became known as the "water magician", and his deep understanding of the laws governing water led him on to a new/old technology based on the natural flow of energy which would provide a cheap and non-polluting source of energy.

He was early made aware of the contrast between Nature's way of working and man-made technology and became more and more convinced that modern technology is life-threatening and inhibits evolutionary growth.



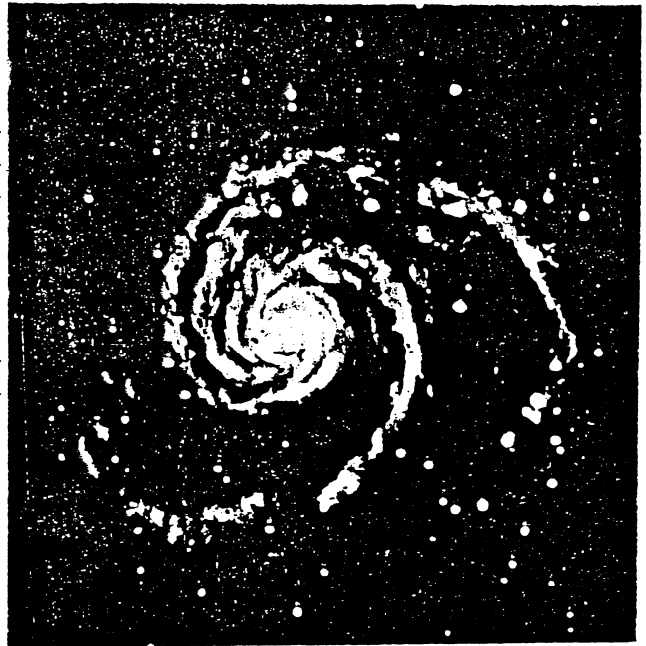
A schematic diagram of the apparatus for biosynthesis. The ingredients for biosynthesis are added together within the airtight egg shaped vessel made of synthetic material. The contents are then set into a hyperbolic centripetal spiral motion by the specially-shaped agitator. A cooling coil provides the appropriate temperature control. The vessel is enclosed within an insulation shell of hydrocarbon material to restrict the loss of 'implosion energy' created, instead concentrating it within the vessel so that biosynthesis can take place. The vacuum meter monitors the 'biological vacuum' formed if biosynthesis succeeds.

## IMPLOSION OR EXPLOSION

"There exist two forms of motion within Nature - one that breaks down, the other that builds up and refines; both always work in cooperation with one another. The form of motion which creates, develops, purifies and grows is the hyperbolic spiral... the spiralling of nebulae in space, in the movement of our planetary system, in the natural flow of water, blood and sap.

"The destructive and dissolving form of movement is centrifugal, in Nature."

The whole of modern technology is based on the idea of breaking down through heat, combustion, explosion. It exemplifies man's single-minded pursuit of destruction and decomposition. To Schauberger, the splitting of the atom and the development of nuclear energy is an offence against Nature. "One can make use of atomic power through the biotechnology of implosion."



A nebula spiral, as a cosmic vortex.

He developed his Trout Turbine, named after his observations of trout moving upstream. Later renamed the Implosion Machine, it could generate power without fuel. "The implosion motor is centripetally operated. It produces its own driving source through the diamagnetic use of water and air. It does not require any other fuel such as coal, oil, uranium or energy derived from atom splitting, since it can produce its own energy (atomic power) by biological means in unlimited amounts - almost without cost."

In this suction turbine an ancient principle is rediscovered - it is not pressure but attraction that the "eternal woman" of Nature employs.

## A MEETING WITH HITLER

In 1934 Schauberger was requested to present himself to Hitler who was well-informed about his earlier work. Later, during the war he was given the choice either to develop machines for the Third Reich, or he would be hanged. He chose the work, understandably, and during this time a project was initiated to build a "flying saucer" powered by a 'trout turbine'.

One report describes the first test of an unmanned flying disc which climbed to a height of 15,000 metres in three minutes; it attained a horizontal speed of 2,200 km/h, could hover motionless in the air and could fly as fast backwards as forwards. This flying disc had a diameter of 50 metres.

This may have given rise to the stories later on, that Hitler escaped to South America in a flying saucer, that his death was a fabrication in the Berlin bunker. Whatever the truth, both the Russians and the Americans were highly interested in Schauberger's work. After the war he was confined by the American forces for almost a year because of his knowledge of atomic energy production. He was forbidden to take up again any research into the atomic energy fields.

So with meagre resources at hand, Schauberger concentrated on agricultural problems. His work was devoted to increasing the soil's energy, and to encourage the build-up and preservation of the insulation "skin" of the earth. He condemned all kinds of artificial fertilizing which exhausts the soil and upsets the subtle balance of nature.

"The farmer of today treats Mother Earth in a worse manner than a whore," he wrote. "Moreover, he prays to a god, whom he believes is up above but in reality is tinder his feet. The modern farmer violates the earth, which reacts by opposing her sungod.

"The old farmer was, for the clod of the earth, both its priest and doctor." The modern farmer, like the modern doctor defies Nature and is quite helpless in combating the increasing spread of cancer.

There was great interest in Schauberger and his implosion research, especially in Germany, and he was enthusiastic that his message should reach the masses over the world. But he also feared that the centres of power he most distrusted, the energy and armament monopolies, would exploit his discoveries behind his back. With mounting difficulties both financially and physically, he struggled on, driven by a compulsion to help solve the world's growing energy problems. But where to obtain the funds?

#### THE AMERICAN CONNECTION

With increasing bitterness, Schauberger realized that his attempts to alert "the establishment" to the breakdown of the ecological order were achieving precious little result. And it was then that two Americans appeared and offered unlimited funds if Schauberger would travel to America and impart his knowledge for the good of mankind.

He and his son were flown to Texas and taken to the solitude of the desert, far from his beloved forests. There was no communication with the outside world. The post was censored. The so-called unlimited funds was a trick to lure Schauberger into a nightmare experience which ended his life.

He was able only to return to Austria if he signed over all his work, past, present and future to the Texan boss 'Mr R.D.' It was made clear to his son Walter, that if he did not keep silent in this respect Viktor Schauberger would be silenced by middlemen based in Munich.

Five days after he returned home, Viktor Schauberger died, at the age of 73. Despairingly he repeated over and over again: "They took everything from me, everything. I don't even own myself."

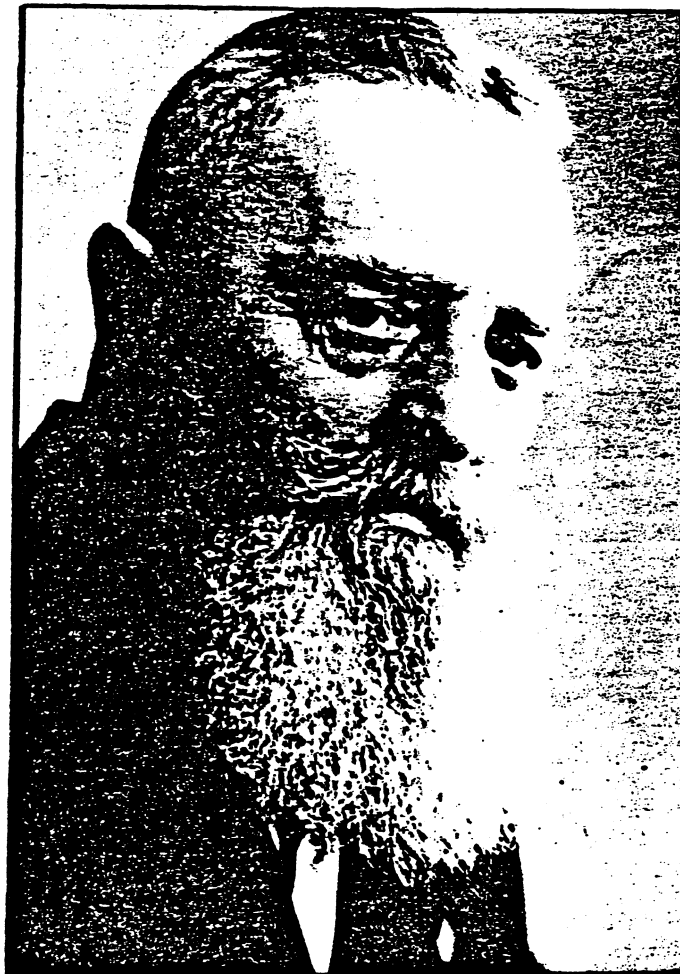


When he could no longer hide his secrets, Schauberger was forced to do that which he most feared throughout his life, to throw pearls to the swine. But his life's work was not buried with him. The vision he gave to the world continues after his death to inspire and give direction to a world dangerously out of balance.

"The only way left is a return to Nature," he said. "It is clear how man can become the master as well as the servant of all creation. Yet this possibility is held on a knife edge, and one mistake could plunge him into the abyss. The man who understands creative transformation is like a god. The one who manipulates this for his own ends is a servant of the devil, who can destroy the whole world."

LIVING WATER is more than a biography of a great man. It is a message of survival.

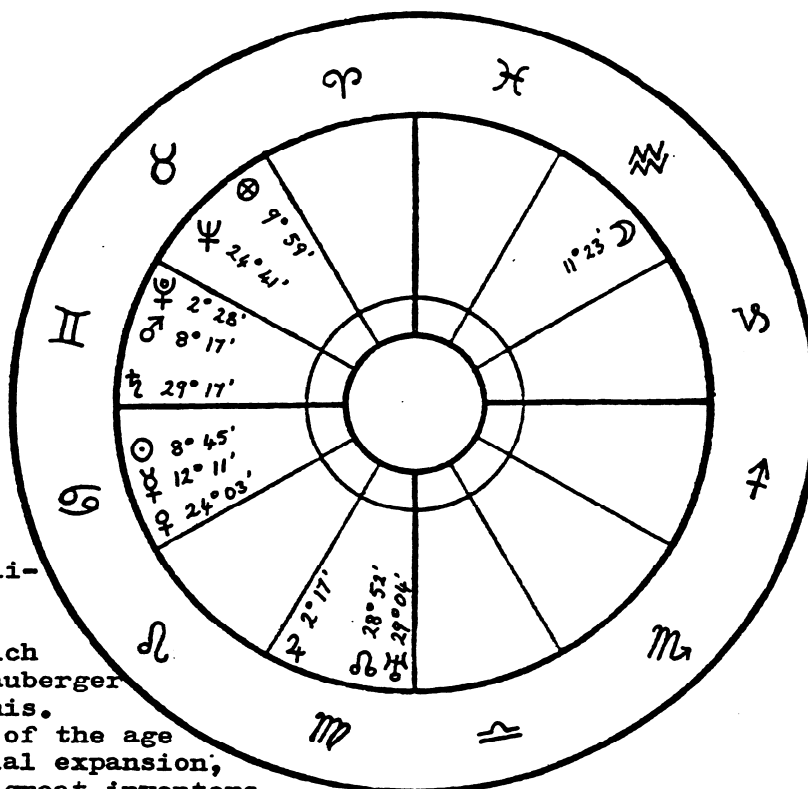
LIVING WATER is available from Thorsons Publishing Group Limited, Denington Estate, Wellingborough, Northants NN8 2RQ, UK.



Victor Schauberger

# Horoscope Data Sheet

Name... Viktor Schaubberger.  
 Place... Holzschlag, Vienna.  
 ... Austria  
 Lat. ... 48N13  
 Long. ... 16E20  
 Birth date { Month... June  
 Day... 30  
 Year... 1885  
 Unknown  
 Hr.....Min.....



In every generation there are people born who exemplify the qualities of the particular zeitgeist, or spirit of the time, in which they are born. Viktor Schaubberger is a perfect example of this. He was born into the dawn of the age of technology and industrial expansion, yet he was one of the few great inventors who retained his close links with nature and was able to tune into untapped energy sources without exploiting the earth. In his horoscope the conjunction of Pluto with Neptune and Mars reveals his inventive genius, his intuitive ability to communicate with the forces of Nature and a tremendous source of energy and creativity. This Plutonic focus is an aspect of energy transmutation par excellence. But it also inevitably means a challenge to existing thought, bringing a great deal of controversy and conflict into his life.

With Schaubberger's passionate love of water and the earth we would expect these two elements to be emphasized in his chart. His Sun, Mercury and Venus are in the cardinal water sign Cancer, bringing the sensitivity and nurturing qualities of the Moon which rules this sign. Also the tenacious loyalty to the Earth, the mother, a desire to protect and heal. Jupiter and Uranus lie in the earth sign Virgo, giving a discriminating intellect and a need to be of service to humankind, likely to be in unorthodox ways.

Pluto, Mars and Saturn are in Gemini, the sign of communication. Schaubberger was able to communicate the forms (Saturn) of his transforming ideas (Pluto) in very versatile and commanding ways (Mars). Saturn's conjunction with the Sun shows his ability as a builder, the probability of his reaching prominence in the world, but also foreshadows the tremendous restrictions and oppression that were to dog his life.

It is no coincidence that his chart is a perfect example of a 'bucket' configuration, the Moon forming the 'handle' in Aquarius. He was able to relate to all types of people, to seed the mass unconscious with his futuristic visions of free energy through a return to Nature's principles. But the highly independent and revolutionary nature of his research (Uranus) brought him into confrontation with the establishment and only now, a hundred years after his birth, is his message reaching out again to the world, as the disastrous consequences of explosion technology threaten our planet with extinction.

IMPLOSION  
from "WELT SPIRALE"-September 1962  
Translated from the German by  
BSR ASSOCIATE BODO CAPELLER 1986

It is usually the smallest incident that changes the face of the earth. Most inventions developed under small and insignificant circumstances. If a contemporary of Galvani would have only hinted at the outcome of that simple frog leg experiment which now is a major factor in our present day life he would have been declared a dreamer.

Similar is the situation in today's implosion research; the pioneers in this field have to experience on themselves how vindictive rejection can be.

The universal genius Leonardo da Vinci had a good grasp of aeronautics proven by his creations of flying machines. However the practical application of flying was doomed due to his insistence to solve the secret of how birds are flying that even has evaded modern technology with all its tools and test instruments. Leonardo da Vinci had selected a dead end path. The solution to the manned flight problem was to go to a later generation. Even those later pioneers did not come up with a perfect flying machine but had to achieve step by step the fundamentals of aeronautics. Intuitive thinking and an engineering background combined with dedicated effort put such people as Otto Lilienthal into the position to lay the basis of modern aeronautics. Among many others the Austrian flight pioneer Dr. Igo Etrich build on this foundation. In his memoirs he describes how he was cheated out of the fruit of his labors as soon as he achieved tangible results. Starting with the simple question "Why is a sailplane able to fly?" we suddenly are transported into celestial mechanics where we intend to remain for a little while we explore a Pandora's box of natural laws that even become more important in the calculation and construction of implosion turbines. Of course the experiences and insights in technology especially in the field of turbine construction have to be considered. Among sail plane enthusiasts there is a saying that "Nobody ever stayed up forever!".

After each high adventure there is a landing. Many have fallen out of the clouds that went there poorly equipped. The spirit may soar in the kingdom of ideas but the feet should rest on firm ground.

It will be attempted here to get to the basics of turbine mechanics. The author is using here already established values and laws.

#### DERIVATION OF THE FORMULA FOR UNIFORM MOTION

If a planet travels uniform in the time period (t) the

distance (s) the speed (v) becomes the average motion of the planet:

$$v = \frac{s}{t};$$

Following units of measure are in use:  
centimeters per second,  
meters per second,  
meters per minute,  
kilometers per second and  
kilometers per hour.

In the following examples the unit kilometers per hour (km/h) is being used.

Instead of elliptical units for purposes of simplification we assume circular orbits. We do not attempt here exact astronomical values, just appropriate values.  
We start with the basic formula:

$$v = \frac{s}{t}$$

and replace the distance with the circumference of a circle with the radius (r). This would be the distance required for the orbital movement of a planet (T) around the Sun. The time is given in days. Because we like to have the time in hours we have to multiply T times 24. Then we obtain the average orbital speed:

$$v = \frac{2r\pi}{24T} = \frac{r\pi}{12T} \text{ [km/h]}$$

Keppler's third law gives us the connection between orbital radius and orbital speed and is expressed in the following manner:

$$\frac{T^2}{r^3} = \text{CONST} \quad T^2 = \text{CONST} \cdot r^3 \quad T = r\sqrt{r} \sqrt{\text{CONST}}$$

If we insert this value for the orbital time into formula one we get:

$$v = \frac{r\pi}{12r\sqrt{r} \sqrt{\text{CONST}}} = \frac{\pi}{12\sqrt{r} \sqrt{\text{CONST}}} = \frac{\pi}{12\sqrt{\text{CONST}}} \sqrt{\frac{1}{r}} \text{ [km/h]}$$

#### KEPPLER'S THIRD LAW

The square of the orbital time of two planets equals the cube of the mean distance to the Sun.

Expressed mathematically:

$$\frac{T_1^2}{T_2^2} = \frac{r_1^3}{r_2^3} \quad \frac{T_1^2}{r_1^3} = \frac{T_2^2}{r_2^3}$$

Example: Mercury  $r_1 = 58.10/6$  km  $T_1 = 88$  days  
 Mars  $r_2 = 228.10/6$  km  $T_2 = 686$  days

Formula:

$$T_2 = \sqrt{\frac{T_1^2 r_2^3}{r_1^3}}$$

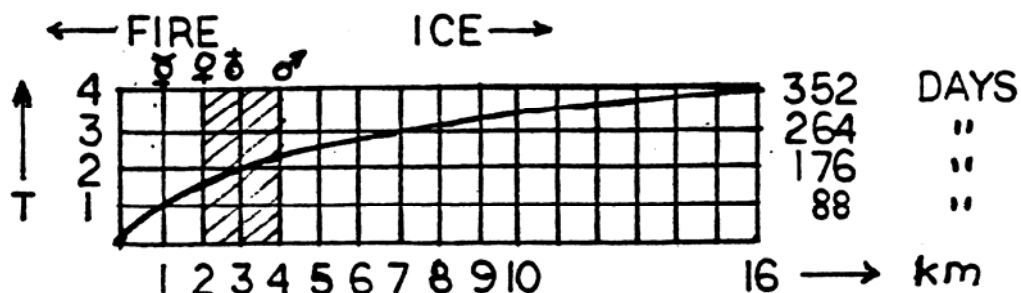
$$\log T_2 = \frac{1}{2} (2 \log T_1 + 3 \log r_2 - 3 \log r_1)$$

Calculation:

2 log. 88	= 2x1.9445 =	3.8890
+3 log 228.10*	= 3x8.3579 =	25.0737
-3 log 58.10*	= 3x7.7634 =	23.2902
	-----	
	5.6725 : 2 =	2.8362
		= log 686

The Mars orbit has about four times the diameter of the Mercury orbit. Therefore the distance traveled by this planet is four times as long. The traveled orbital distance however is eight times as long. It can be reasoned that a planet at four times distance needs twice as much time for the same distance traveled in relation to the Sun. In this case the orbital radius of Mercury has been used as averaging factor. The orbital speed is therefore half as fast.

In picture #4 is shown that with increasing distance from the center point a planet needs more time to travel a mean distance. The function shows a parabolic curve from inception. At four times the distance twice the time is needed, at nine times distance four times time. The picture is somewhat drawn inaccurate. In the hatched portion of the picture is the possible occurrence of lifeforms indicated that seems working from the outside in to show increasing development. On Mars lower lifeforms such as bacteria, mosses and lichen and on Venus higher forms of life. In the middle is Earth with all her spiritual and material phenomena that strive in their entirety for a higher development.



#### THE RADIAL VELOCITY

For the full angle of 360 degrees or 2 pi it takes the full orbital time (T) of a planet, the average angular speed computed at:

$$\bar{w} = \frac{2\pi}{T}$$

We recognize from the preceding the average orbital speed as:

$$\bar{v} = \frac{2\pi r}{T}$$

and can therefore define the average orbital and angular speed:

$$\bar{w} = \frac{2\pi}{T} \quad \bar{v} = \frac{2\pi r}{T} \quad \frac{v}{r} = \frac{2\pi}{T} \quad w = \frac{v}{r}$$

The radial speed multiplied by the radius results in the orbital speed. From Kepler's third law we have the following relation:

$$\sqrt{v} \sqrt{r} = \text{CONST}$$

and can insert for the speed (v) the product of angular speed and radius and receive:

$$w r \sqrt{r} = \text{CONST} \quad w \sqrt{r^3} = \text{CONST}$$

The definition of the technical measuring system is as follows: The angular speed (w) is the angle of a orbital beam traveling in one second through an angular distance with the unit of 1/s.

In the following example it is assumed the travel through a sector in one hour and defined as 1/h.

$$w = \frac{\pi}{12 \text{ CONST}} \sqrt{\frac{1}{r^3}} [1/h]$$

Example:

1. The angular speed of the earth,  $w=v/r$ .

$$\log 107.500 = 5.0314$$

$$-\log 150.10^* = -8.1761$$

-----

$$.8553-4 = \log .0007170 \text{ 1/h}$$

2. The angular speed of Jupiter,  $w=v/r$

$$\log 47.000 = 4.6721$$

$$-\log 778.10^* = -8.8910$$

-----

$$.7811-5 = \log .0000604 \text{ 1/h}$$

$$\log .0007170 = .8553-4$$

$$-\log .0000604 = -.7811-5$$

-----

$$1.0742 = \log 11.86$$

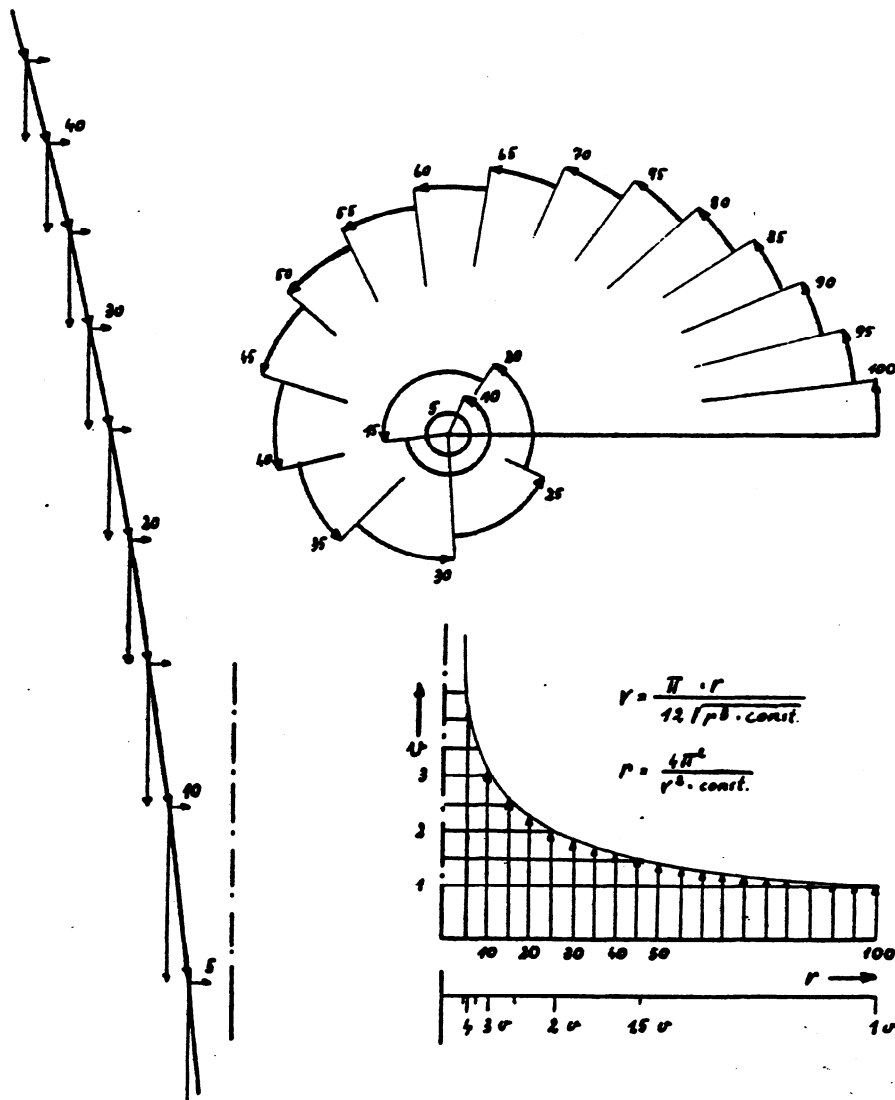
Drawing 5

The angular speed of the earth is 11.86 times faster than

Jupiter's. It also can be expressed as Jupiter taking 11.86 years to circle the Sun. With declining radius the angular speed increases.

The attraction to the center causes an angular acceleration when the turning impulse remains intact. In drawing #5 this relationship is graphicly demonstrated. The speed (v) has been designated a function of the radius (r). Out of this display it becomes evident that with declining radius the speed increases. The increasing speeds have been transfered to the orbit under use of the corresponding radii and joined the resulting vectors. The resulting structure is a spiral. If the speeds of the corresponding horizontal steps are joined it will result in a curve closing in asymptotic on the center point as pointed out in the drawing.

It can be deducted from this observation that the windings of a spiral become closer at the center point. signed (F.Sp.)





NEW SUCCESS IN BIOTURBINE CONSTRUCTION  
From "WELT SPIRALE"-January 1963  
Translated from the German by  
BSR ASSOCIATE BODO CAPELLER 1986

The year 1962 was very successful for the overall development in the field of "Bioturbines". It can be said once and for all that besides linear motion the vortex action can be used for power or electric generation, even better than conventional turbines. We find not only advantages in the increased capacity over the late model "Deriaz turbine", an improved "Kaplanturbine", where the efficiency factor is in excess of 95%. Another important advantage is the lack of cavity erosion where for the first time the bladesurface is preserved for a longer time period because the scoops on the runner are no longer pitted. Also it becomes evident that the moving water rather cools than heats which is helpful for the rejuvenation of the water, not to mention the noiseless operation of this turbine.

The further development has shown another outstanding development insofar it made possible in these new "Biorotors" to change centrifugal (axial to radial = from inside to outside) forces into centripetal (radial to axial = from outside to inside) whereby the existence of implosion forces without a doubt can be verified. In this manner one can in one and the same rotor transform overpressure into underpressure which not only is a raise in efficiency but also is the prerequisite of cooling the water.

This new development resulted in a patent application of three different models of which the simplest version was built in the spring of 1962 and superseded by improved patent applications later on. In succession two more systems of the original turbine were developed by the inventor. Under this designation they will be probably found in the professional literature. After these main systems dozens of variations in models can be derived that have been made patent ready. Both systems of "rotating stream turbines (Drehstroehmungsturbine)" are suitable for any gradient low, middle, or high. In the case of a low gradient the Kaplanturbine is preferred because it is already economical at a gradient of one Meter (33 inches).

The full exploitation technical as well as mathematical of the 1962 rotating stream turbines could after initial patent issue occupy an engineering team for a decade. Not to mention in case of incomplete development is a chance of further improvement for many more decades.

The further development of the rotating stream turbine gives it the status of a "perpetuum mobile" of secondary kind where the initial impulse pushes it over the 100% efficiency factor. In this case science has to define a different designation. The technical application of the vortex action would in my opinion fully justify the exploitation of this possibility.

The thought that under steady application of pressure energies one gives the bioturbine its momentum which would make it a perpetual motion machine the way my predecessor Viktor Schauburger had envisioned has to be relinquished by the dyed in the wool "implosionist" under the pressure of evidence. For that reason the slogan "Implosion instead of explosion" has to give way to "More implosion instead of explosion". This slogan is still a distant goal that we have to achieve with more research. We have to bury the old Schauburger slogan "Implosion instead of explosion" for the absolute reason that explosion has a reason for existence in the cosmos. The task for technology is to get away from the onesided application of explosive or pressure factors because they cause heat and other undesirable sideeffects. We have to harmonize in the interest of balance in nature the pulling and implosive forces. Technology is also in many areas, for instance in vehicle construction, engaged to switch from high pressure to low pressure ( new cooling systems).

It is now hoped for that in 1963 the "biotechnic" seeds will germinate. Only at a point where patents have been issued the secret can be lifted. This is the moment where the seeds warmed by the rays of the sun may strongly break the soil. Till then we ought to have patience.

## THE GERMAN FEDERAL MINISTER FOR NUCLEAR ENERGY ON BIOTURBINES

The mechanical engineer Albert Schliephake from Egestdorf-Deister, an intense proponent of biotechnical thought, wrote on April 14, 1962 to the German Ministry for Nuclear Energy on the subject of the new invention of the bioturbine and received the following official reply with those historic important words:

Official designation IIBl-5211-o-3/62

Subject: Invention of a bioturbine.

Your request: Your letter to the minister for special affairs dated April 14, 1962.

Dear Mr. Schliephake

The federal minister for special affairs has forwarded to me your letter dated April 14 for further action.

May I call to your attention that the federal minister for nuclear energy in the field of energy generation is only concerning himself with the erection of nuclear plants. For that reason it was correct on your part to suggest to forward the matter of a powerplant running on bioturbines to the the minister of economics where the department of electrification would be more receptive to you.

As to your critique that the Rhine-Westphalian Electric Company intends to erect a nuclear power plant at the cost of 300 Million Deutsche Marks may I reply that in view of the great progress in foreign countries with electrical generation from nuclear materials it has become necessary that in the Federal Republic steps have to be undertaken to build a large scale nuclear power plant. Even if it can be expected that electricity from this plant may run higher costwise than from conventional plants may I ask for understanding that German industry has to gather experience in the development and construction of nuclear plants. We are dealing here with a brand new technology that requires in the beginning immense funds for research and development similar to other branches of technology that have not quite completed development.

With best regards, Dr. Pretsch

## BILLIONS FOR NUCLEAR RESEARCH - NO MONEY FOR BIOTECHNOLOGY

The letter from the German Nuclear Minister gives clearly the position of the official standpoint. On the question of research and development in biotechnology was not even touched upon although those costs may only run 1/1000 of the already expended effort on nuclear energy. The loner is condemned to eternal silence the way many other inventors have been dealt with. Especially Austria has been a negative example in this regard.

At least the German government gave for reasons of being polite an answer/ the Austrian government remained silent on my proposal. However through the grapevine I received biting criticism. What is a insignificant inventor? He should dissappear into the ground such as another Austrian inventor as for instance Peter Mitterhofer (typewriter), Josef Madersperger (sewing machine), Siegfried Markus (first automobile), Joseph Ressel (ships propeller), Wilhelm Kress (airplane) etc.

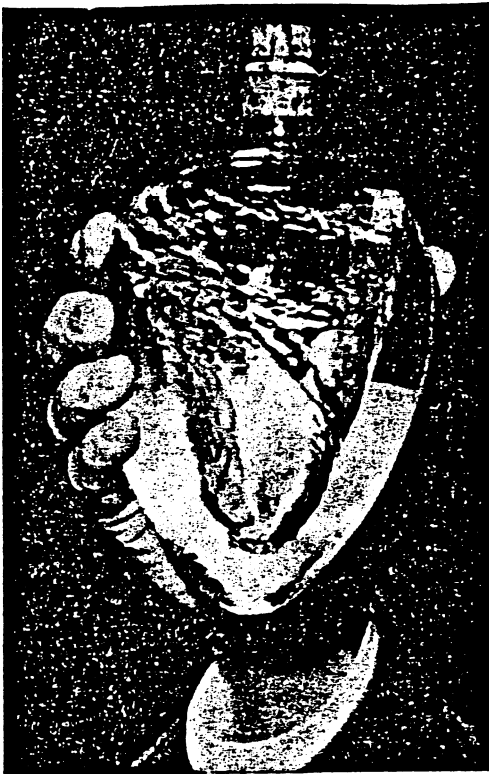
This time it is more than a typewriter or a sewing machine, this time it is a solution of the energy problem and the rehabilitation of a vital element, water. Not only the advantages of civilization but human survival are at stake.



Leobrand in an experiment to the solution of purity in water  
Suction funnel in eggshaped container.

The Danish government reported in December that it withdrew from a planned nuclear plant on the island of Groenland because of the doubling of costs over a conventional powerplant. Besides this the only fixed costs of a hydro plant are those of erection, the water is free, however in case of a nuclear plant the fuel has to be secured at ever increasing cost, the nuclear waste with the resulting Plutonium to be used quietly in nuclear weapons still causes major headaches.

In reverse to the Danish government the well to do countries even with their coal reserves growing that could power steam plants have millions to spend on research can afford to bypass something cheaper and better. That may only go well for so long till biological bankruptcy in the field of watermanagement will cut the throats of those gentlemen that today are laughing at biotechnology. Between Moscow and Washington is a direct phone line planned where Kennedy and his Russian counterpart may say each other good-bye in hades before the big bang. One hopes to see the seriousness of the problem. In the field of friendly nuclear endeavour humanity has seen to little damage in order to arrive at a better understanding.



#### Vortexfunnel

Who can find the black soldier with the crooked hat and the two white buttons? This is not a mirage or hologram. The film is only recording what only x-ray eyes may see. The apparition is not only visible with flash photography, a problem for occultists and realists that are exploring the secrets of life.

The contest for the acceptance of biotechnology is going on nevertheless even with dime contributions and the most meager research facilities. Progress has been made so that it can be said with certainty existing turbine. systems with newly invented models of bio, vortex, or rotating stream turbines are economical and biological sound. Even if many years will go by they will lead the victory march around the globe that nobody will stop any longer. Even the highest concentration of conventional turbine manufacturers will bow to cosmic law that any crack in their product will turn into a ventpipe or venturi of a new technology.

THE STATUS OF BIOTURBINE DEVELOPMENT  
From "WELTE SPIRAL"-March 1963  
Translated from the German by  
BSR ASSOCIATE BODO CAPELLER 1986

Over and over again the burning question of the latest stand of bioturbine development is arising. It is also questioned why this matter is not more accelerated and the construction of nuclear power generators effectively delayed. Not at least many of us are asking why Schauburger's idea is not applied in larger measure.

The last question has been answered sufficiently in the publication "Welt-Spirale (World Spiral)" issue 7/8 July 1962. Only recent additions to this will be reported here. The publication "Implosion statt Explosion (Implosion instead of Explosion)" that arrived in the summer of 1955 was intended as a solution to the energy dilemma and against nuclear development. It was put down in faith and trust to the integrity of the notes handed to me by Viktor Schauburger. Because of the urgency deemed by the editor and the belief into Viktor Schauburger as a prophet of his insights and discoveries it has not been waited for the photographs of the implosion machine or the intended home power plant. The publication went into the world and aroused surprise, hope and satisfaction among groups of progressive and nature loving people. Among the educated group of technicians Viktor Schauburgers views aroused skepticism and icy rejection. A useful explanation of this viewpoint was never given. Even Viktor Schauburger was not privileged to give any practical explanation for the proof of his insight. Finally it got so far that the home power plant could be started up. On the first test run several pipes blew out. There was an explosion instead of implosion because of centrifugal forces getting too strong from a start with a conventional electric motor and the confined water that could not escape through the jets due to faulty construction. Therefore it started under pressure instead of a vacuum. Viktor Schauburger believed after this that the correction of his mistakes would remedy the situation. The teacher Sebastian Thurner of the State Polytechnic School in Salzburg offered himself to build the improved version. This machine was never started but the old one went to the United States, was there unsatisfactory disassembled and made totally useless.

After Viktor Schauburgers death in 1958 all development came to a halt. Only in the fall of 1961 did I feel caused by an outside event the urge to begin myself even under heavy personal obligations with research of bio energies. The attempted experiments gave surprising insights and finally practical results.

As a result of these research experiences it can be said that the improved second machine which went with Viktor Schauburger to the United States never would have worked

because the inventor insisted on grave errors in behalf of current flow within the machine.

The Schauberger philosophy of an inverse universe in opposition to an expanding universe is just as onesided as the other. The truth lies in the synthesis that the universe is in a timeless inverse and expanding motion. The onesided implosion process is just as valid as an onesided explosion process. Above this the world has known that the explosion process is followed by an implosion process, the only fault lies with technology of not having utilized it in energy generation.

Through the simultaneous use of expansion and contraction processes, pressure and vacuum would it be possible to create a perpetual motion of the second degree that does not rely on an initial impulse but takes 100% energy and provides in the work cycle more energy than supplied with. This only can be provided when vacuum forces are actively involved. The Viktor Schauberger implosion motors were designed to be perpetual motion machines started by an initial impulse/ a possibility totally rejected by science as an absurdity. It is just not enough to give a power generator an initial impulse to make it go forever. A perpetual motion machine of the second degree is more plausible to science. On many sides is the effort under way not only in the field of cold combustion - note the work of professor Justi yet to be reported - to solve the problem.

These experiments are costly. Even scientific institutions do not have sufficient funds available, not to mention the lone inventor. Only large corporations with their workshops, test stands and laboratories are in the position to conduct those experiments and measuring to the proper degree. Regardless a lot has been accomplished in a single year. Without boasting one can say that inventions made last year have given surprising successes in the field of bio turbines that need patent protection.

The attempt to build rotary or vortex turbines goes back many decades. Most came to naught because the proper spin could not be established. Against my initial patent application with the Austrian patent office it was countered with four vortex based turbines with identical basis already patented. In this case we were dealing with an old Austrian patent granted in 1923 and even older patents from Switzerland, Great Britain and the United States.

On closer study and comparison with my invention one may observe that all those other inventions, failed in generating a centripetal regular vortex. Some of these inventions show gross mistakes in flow design such as stoppages and irregular vortexes that makes one wonder how the patent protection ever could be extended. These inventions never saw practical application because of a low efficiency factor that even cannot compete with conventional Pelton, Francis and Kaplan turbines.

In order to achieve something outstanding in the field of hydro electric power generation technically a miracle has to happen because those turbines have already an efficiency factor of 94 to 95% with any increase deemed impossible. With



steam and gas turbines the efficiency gradient is less than half with the option of improvement.

Because of tremendous development in bio turbines my original patent application of 12. April 1962 has been superceded by subsequent developments. Although these applications show the interesting development in this field for practical reasons it would be more prudent to drop the original application in favor of two improved applications in order to gain annuity. Latest research shows two flowsystems in use that cannot be accounted for in a single patent. Each of these systems can be manufactured in many variations with the possibility of a dozen different models.

In all cases can be said that existing conventional turbine systems that span a development period of over a hundred years are facing two newly discovered systems barely one year old. With the aid of of these two centripetal operating vortex systems any gradient, even an abnormally low one can be utilized. The second system can even be operational in front of an intake channel impossible before and holds promise for a floating or tidal power plant.

Therefore the answers of the most unpatient have been answered that bemoan the slow development. What is a year in a timespan of accelerated evolution. By clinging to the mistakes Viktor Schaubberger made a lot of time has been lost. As soon as these mistakes were recognized things moved rather rapidly. Also it has to be mentioned that development with the most meagre means is still very expensive. Without the help of generous friends it never would have been possible to solve all problems. Theoretical speculation would never get to the heart of the matter. Rather empirical experiments were necessary and still are needed. Those self sacrificing friends that consist of closest mental allies should be thanked in public at this occasion. Not only experiments cost money but also patents before they are granted. The application of a single patent in about 20 countries of the union with the utilization of foreign patent attorneys, translations etc. run at least 100,000 Austrian Shillings depending on the extend of the sought for patent protection. With a light heart the original patent application can be cancelled in favor of two improved patent applications. Now it is up to the turbine industry to take over the further cost of development and patent protection. If not I did my part in the duty to humanity to bring the practical proof that pressure and vacuum, centrifugal and centripetal forces can be used harmonically in a power generating machine. The concept has been proven without a doubt.

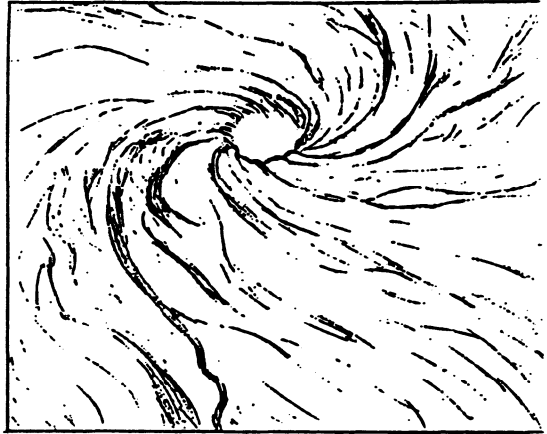
Signed: Leobrand

## VORTEX

## NOTES

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Remember when you were a child, how you marveled at the way water made a vortex when it went down the drain? The vortex is a basic law of the universe. We shall see that the vortex is present from the interstellar nebulae to the atom itself. The energy of the vortex molds the Universe from the microcosm to the macrocosm. It is the formative energy of creation.

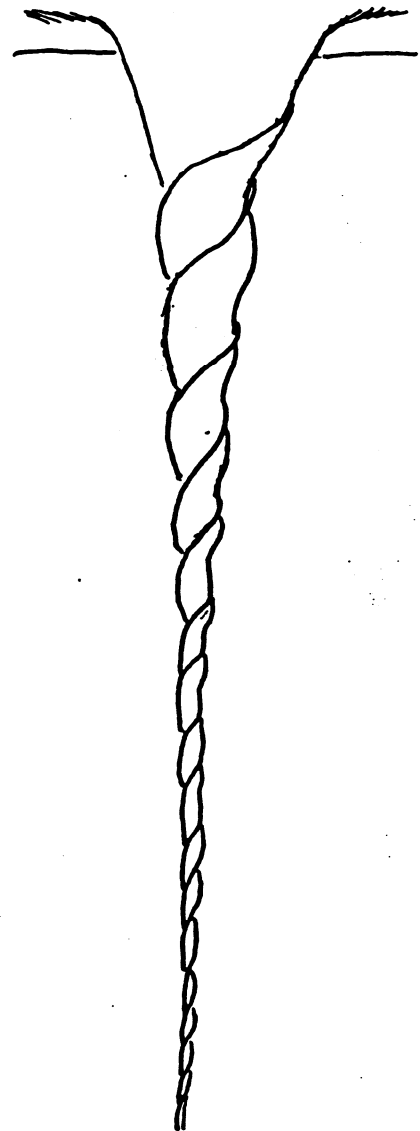


Every organ in every living thing is a part of a frozen vortex. All organs are literally vortex formed. Dr. Theodore Schwenk of Weleda Laboratories has published an excellent book entitled the Sensitive Chaos in which he gives example after example of the vortexial formative process in nature. The primordial force involved in vortex formation is tuned to the woof and warp of the Universal matrix.

All flowing fluids, although appearing to be uniform in structure are divided into extensive inner surfaces. When any discontinuity appears in the fluid, such as an obstruction, the inner surfaces flow at different rates and form themselves into a spiral or vortex. When a vortex is formed it appears to have a body of its own. It separates from the rest of the fluid and behaves as if it were a solid mass. It is self contained yet bound up with the whole.

We find that the vortex has a rhythm of its own. It shrinks in diameter and increases in length at one moment, at the next it expands in diameter and shrinks in length. It continues this oscillation in a periodic manner just like a pendulum or the mainspring of a watch.

We can easily view the parts of a vortex by adding a little glycerin to water. We then put the water in a clear cylinder with a hole in the bottom. The water is stirred so that a vortex funnel is formed. We then add a few drops of food coloring to the water.

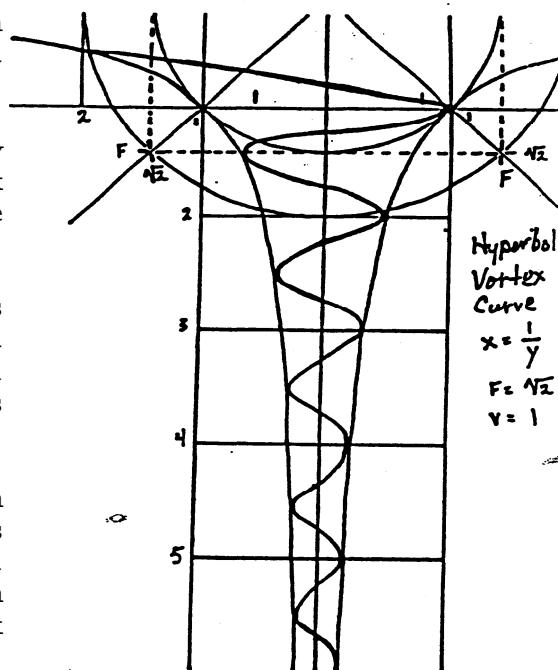
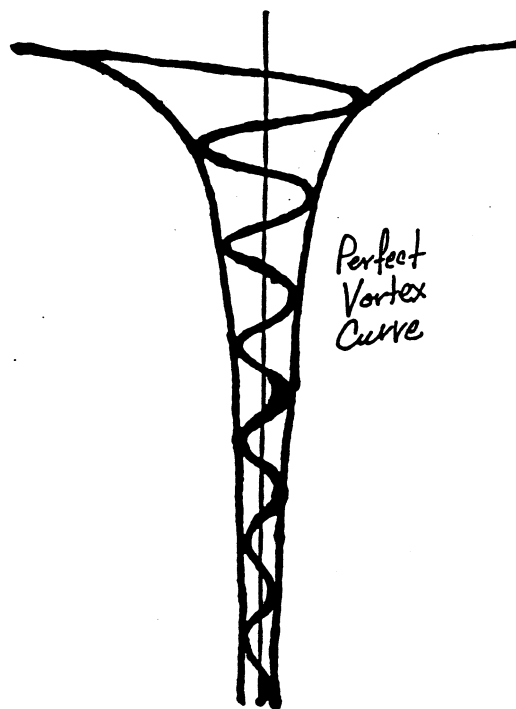


The entire vortex comes alive. We can see the layers of formative surfaces as well as the rhythmic pulsation of the whole. The inner surfaces spin more rapidly than the external ones and form cork screw like patterns that remind us of fancy sea shells.

If we look at the vortex from above we see a hole which is the suction center. We drop a small piece of wood into the water and find that the wood circles around the vortex hole, first moving slowly and then more rapidly as it approaches the center. It then circles around the vortex throat in an eccentric manner and is projected to the outside layers again. The wood is actually describing an ellipse in which the focus of the ellipse is the center of the vortex throat. On examination we discover that the water circulating around the vortex follows the exact laws of planetary motion. In fact the planets of our solar system follow the exact same circulation in their orbits around the sun. The sun is the focus of the elliptical planetary orbits. This law of planetary motion was discovered by Johannes Kepler hundreds of years ago! The vortex in its laws of movement is a miniature copy of the solar system. On a larger scale it is found in the great stellar nublæ.

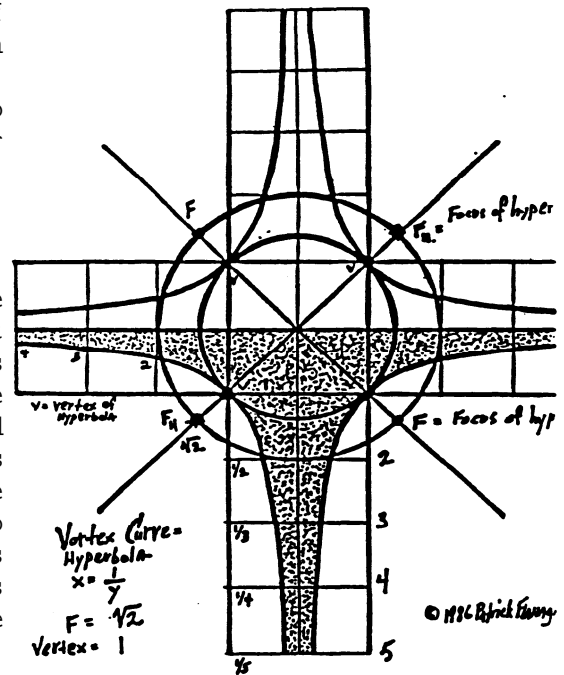
Our small piece of wood eventually gets caught in the center of the vortex and is drawn to the bottom of the cylinder.

According the Dr. Schwenk the vortex has other properties that suggest that it may have cosmic connections: If a small floating object with a fixed pointer is lowered into a vortex, it will circle around and around with the pointer always pointing in the direction in which it was originally aimed. It acts just like a compass needle! It will always be directed toward some point in infinite space. According to Schwenk this shows that a vortex is always oriented as if it were held in place by invisible cosmic threads.



The vortex is a miniature model of the entire universe. Its orientation in space corresponds to the fixed stars, its layered circulation corresponds to planetary motion and the suction center corresponds to the sun.

The velocity of fluid at any point in a vortex is equal to a physical constant divided by the radius from the suction center. That is to say that velocity increases as the radius gets smaller. In a perfect vortex, as the radius approaches zero its fluid velocity will approach infinity. As infinite velocity is impossible in the physical universe, something has to give. In the case of water the molecules begin to dissociate into a vapor. This dissociation is accompanied by the generation of high voltage electricity.



We have measured charges as high as 12,000 volts in the exact center of a liquid vortex! The pressure in the center of a vortex is theoretically infinitely negative. In this condition, space would be turned inside out.

The exact shape of a vortex is a hyperboloid or hyperbola of rotation. From elementary geometry we may recall the formula of a hyperbola.

We find that the curve of a vortex is a special hyperbola which is known as a square hyperbola. In the liquid vortex if the Vertex is 1, the Focus is equal to the square root of 2.

In the diagram, a square hyperbola is represented. The shaded portion represents the cross sectional form of a liquid vortex. The mirror image above the shaded portion is the imaginary hyperbolic force field above the physical vortex below. The V in the diagram is the peak of the curve, and is called the vertex. As with other conic sections such as the parabola and the ellipse the hyperbola also has focal points which are represented by F.

$$\frac{x^2}{A^2} - \frac{y^2}{B^2} = 1$$

Hyperbola

Square hyperbola

$$= x = \frac{1}{y}$$

$$y = \frac{1}{x}$$

$$V = 1$$

$$F = \sqrt{2}$$

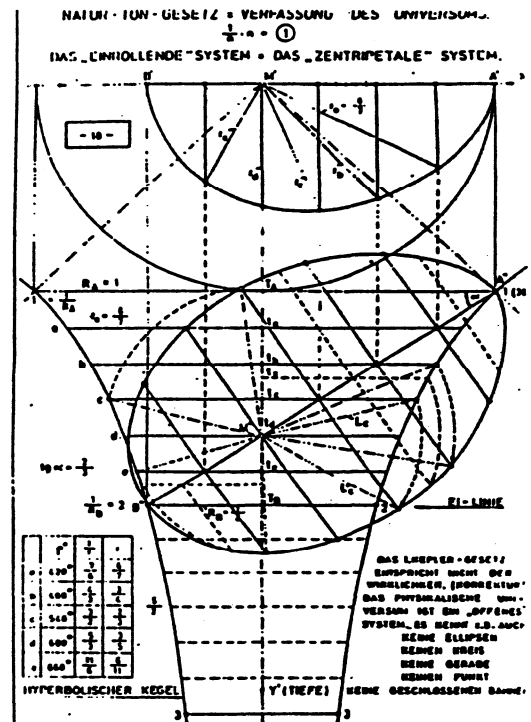
Viktor Schauberger, the German Forestmeister observed the liquid vortex in nature. He spent a lifetime observing the flow of mountain streams in the virgin forests of Bavaria and Austria. The world is in great debt to this pioneer. He observed many phenomena associated with the liquid vortex. These phenomena include: energy discharges such as halos, and ball type lightning; levitation - in which heavy egg shaped stones float on the top of a vortex; the production of virgin water or edel wasser (living water); the purification of polluted water; and the production of free energy.

Schauberger and his son Walter who is also a pioneer in this area of investigation developed, egg shaped vortex reaction chambers. These chambers are called implosion chambers as the energy developed is centripetal rather than centrifugal. He maintained that centripetal energy is the basis of life whereas centrifugal energy is the basis of decay and destruction.

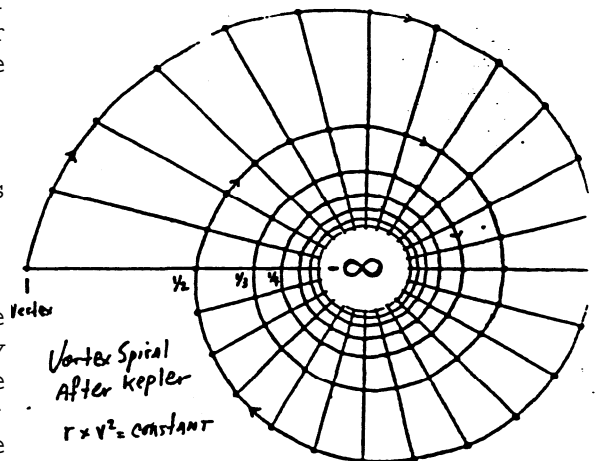
In the same way that a hyperbola is a conic section, Schauberger reasoned that the perfect shape for a vortex chamber was an egg shape which is a cross section cut through the hyperboloid form of rotation developed from the square hyperbola. In other words, a cross sectional cut through the vortex throat.

The evolution of the Schauberger egg is shown in the next diagram.

The vortex spiral when viewed from above is a harmonic spiral first discovered by Kepler. This spiral is shown in the diagram. As it approaches the center from the outside, it decreases in size with each turn from unity on the outside to  $1/2$ ,  $1/3$ ,  $1/4$ ,  $1/5$ , etc.



*Schauberger Egg Geometry —*



*Harmonic Spiral*

In our research, we have been looking at another possibility for the perfect vortex reaction chamber. If we look at the formulas for the hyperbola and the ellipse we find that they are exactly the same except for the sign in between the x and y portions.

$$\text{Ellipse} = \frac{x^2}{A^2} + \frac{y^2}{B^2} = 1$$

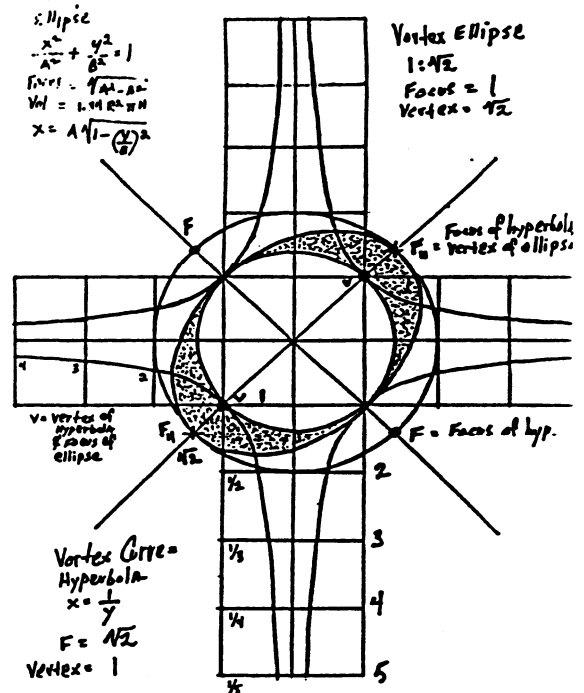
In the case of the hyperbola, the figure is open and the ends of the lines never touch each other. In the case of the ellipse we have a closed curve which when rotated about the axis will yield a ellipsoidal container.

We reasoned that the best container for a vortex would be the mathematical compliment or inverse to the hyperbola. A type of ellipsoid.

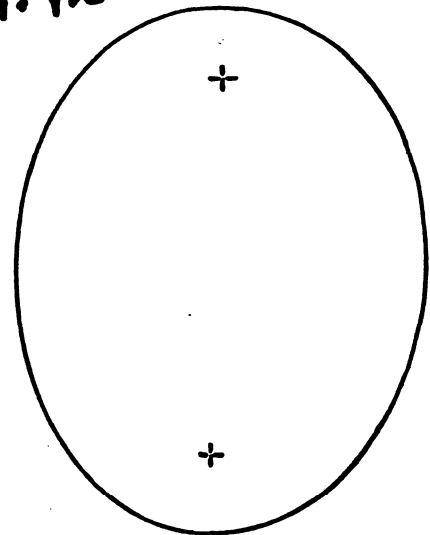
The question became one of discovering the exact mathematical inverse to the the hyperbola. However, as the water vortex curve is a square hyperbola, the first thought is that the inverse is a circle which is the cross section of a sphere. This shape turned out to be a very poor container for a vortex, as a matter of fact it was the worst container for generating a perfect vortex.

We went back to the drawing board and finally derived the exact inverse form. This form is an ellipse that has points that are exactly tangent to the significant points on the hyperbola. As we can see in the next diagram, we have an ellipse shape which is superimposed on the square hyperbola. The outline of the ellipse is shaded so that it can be easily seen.

This ellipse is indeed the exact compliment to the square hyperbola. The vertex of the hyperbola is the focus of the ellipse, and the focus of the hyperbola is the vertex of the ellipse. The vertexes of the diagonal hyperbolas are just touching the narrow sides of the ellipse. The length to width ratio of this ellipse is one to the square root of two. We can call this ellipse a root two ellipse.



1:√2



Root 2 ellipse

An easy test to see which container is indeed the perfect container for a vortex is to construct various containers of equal volume and then drill small holes in the bottoms.

The holes are plugged and the containers are filled with water. The water is given a rotational momentum by stirring with a spoon. The hole is then unplugged and the formation of a vortex is observed. It will be found that different shaped containers require different sized holes to sustain a vortex flow discharge by gravity alone.

When the hole is too small the water loses momentum and simply flows from the container in a solid stream which is devoid of vortex flow. When the hole is enlarged a point will be found at which the increased rate of flow will provide enough gravitational energy to sustain a vortex.

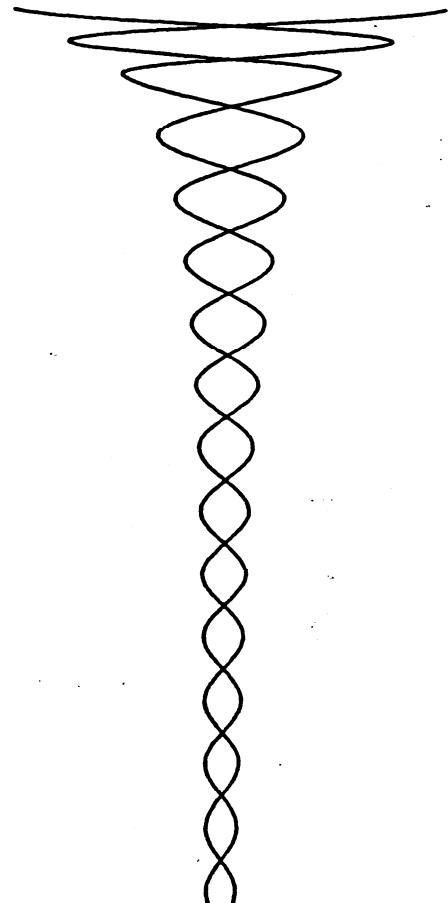
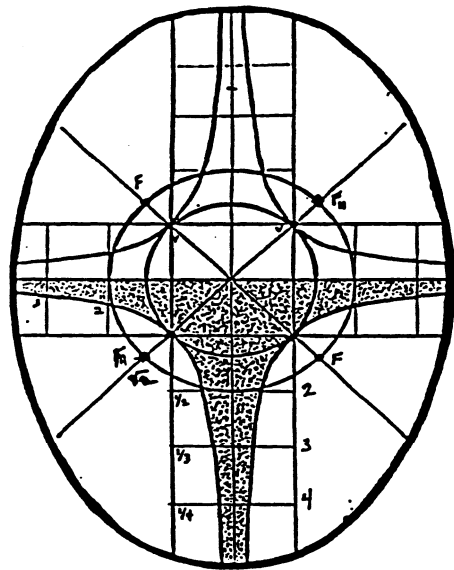
The closer the container is to the perfect curve for sustaining a vortex, the smaller the required hole and therefore the smaller the required energy for sustaining a vortex. The perfect container will be one that develops a resonance with the hyperbolic vortex discharge. At resonance the vortex shaped flow will be sustained with minimal flow rate and therefore minimal energy.

Our ongoing research indicates that the root two ellipse is indeed the perfect shape for a vortex implosion chamber.

#### ARCHETYPAL VORTEX

In the beginning of this paper we indicated that the vortex is a universal law of the Universe, it is the sustaining form of practically all physical phenomena. The ancient vedic texts of India indicate that the shape of the Universe is ellipsoidal. Perhaps that is why our galaxies have vortex forms.

Page 6, JANUARY-FEBRUARY 1989 JBR



**2 stream vortex  
side view**



Dr. T.J.J. See, was Professor of Mathematics, formerly in charge of the the 26 inch Equatorial Telescope of the U.S. Naval Observatory, Washington, D.C.

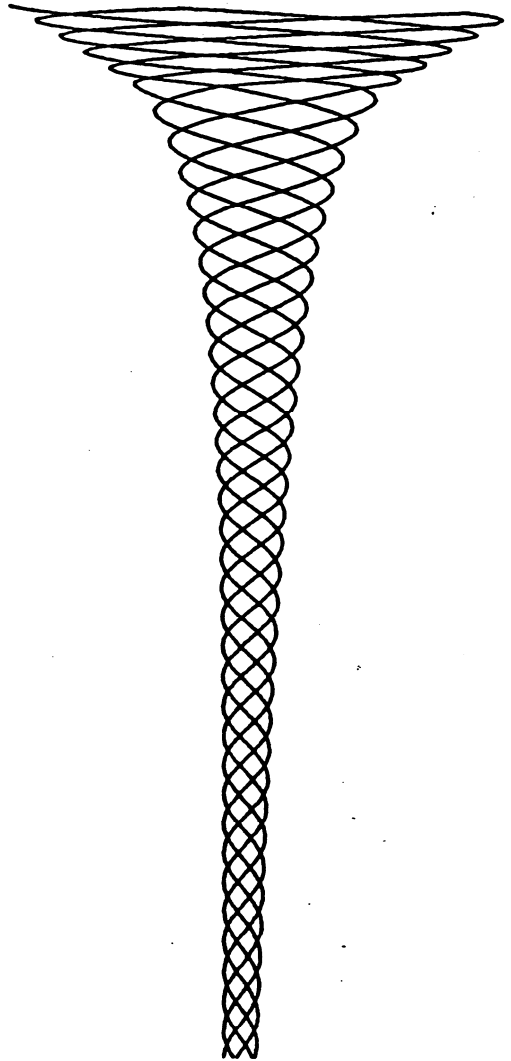
In 1943 he published a monumental series of 10 volumes entitled: Wave Theory! Discovery of the Cause of Gravitation. His books consisted of thousands of pages and were based on the mathematical discovery of the basis of Magnetism, Electrodynamics and other forces of nature obeying the geometrical law of the inverse squares: with complete mathematical and physical analysis based on Fourier's Wave Theorem of 1802.

Dr. See shows that the entire physical universe revolves around the rectangular (square) hyperbola. The hyperbola referred to its asymptotes as in our vortex diagrams is the basic curve of multiple phenomena including the inverse square law of electromagnetics, the laws of magnetism, the temperature of the sun at any given point from its center outward, the surface to volume relationships of all matter, the structuring forces binding all matter, the laws of gravity, and the laws of planetary motion.

For the moment, we have all we can do in our research of the liquid vortex and its potential uses in air and water purification.

We currently use the energy phenomena associated with the liquid vortex as part of a system for making highly charged colloids. This charge which is known as the zeta potential is extremely important in colloidal behavior inside and outside of the living system.

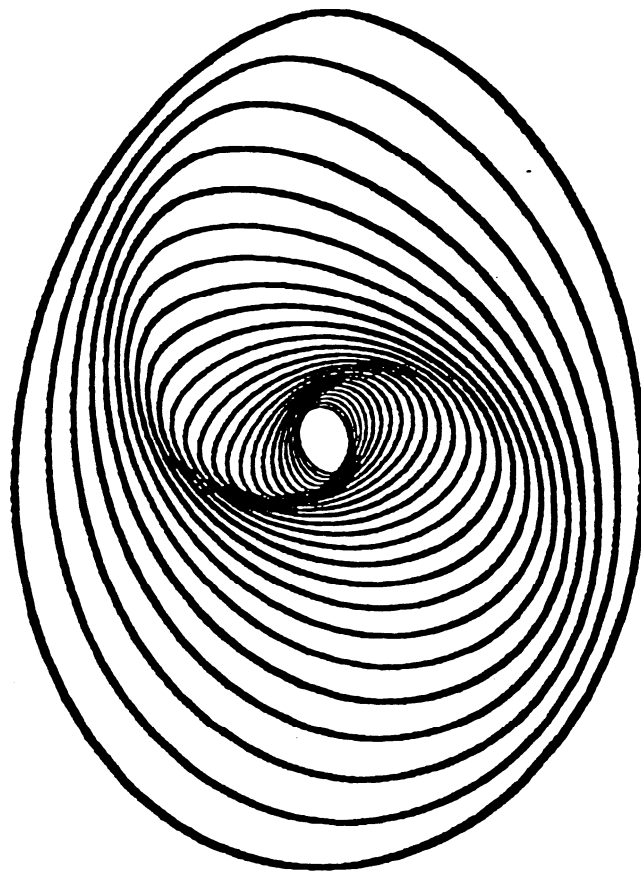
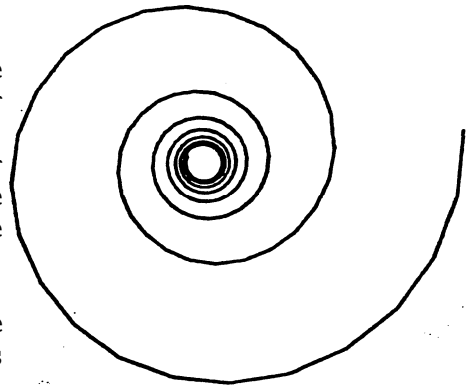
Using the square hyperbolic curve we can show that as colloidal particles are made smaller and smaller, the surface to volume ratio goes up at a spectacular rate.



**5 stream vortex  
side view**

When these tiny pieces of matter are charged to high potential at a molecular level the surface energy of these colloids act to catalyze a large number of physical processes which cannot be demonstrated without these high surface energy conditions.

We hope this brief description of the vortex will help to launch our readers into new frontiers of their own.



ARCHETYPAL VORTEX  
1988 Patrick Flanagan

Part III

The

AUSTRIAN PATENTS

of

VIKTOR SCHAUBERGER

Translated from the German by

Jorge Resines

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(2) Austrian Patent N°122144 "Artificial Channel for Transporting Logs" (Kunstliches Gerinne zum Schwemmen von Holz und dgl.); Granted on April 10, 1931 (5 Figures). Page N°3

(3) Austrian Patent N°134543 "Conduction of Water in Tubes and Channels" (Wasserführung in Rohren und Gerinnen); Granted on August 25, 1933 (5 Figures). Page N°5

(4) Austrian Patent N°13 214 "Installation and Correction of Flow in Draining Channels by a Contention and Stabilization in Higher Level of Dammed Water" (Anlage und Einrichtungen zur Regelung des Abflussgerinnes von Staubecken und Festigkeitserhöhung deren Abschlussdammes); Granted on January 10, 1934 (3 Figures), Page N°5

(5) Austrian Patent N°138296 "Water Conduction" (Wasserführung); Granted on July 10, 1934 (3 Figures). Page N°9

(6) Austrian Patent N°142032 "Construct for Fabricating Tap Water like that of Natural Springs" (Verfahren zur Herstellung von quellwasserähnlichen Trinkwasser); Granted on June 11, 1935 (1 Figure). Page N°10

(7) Austrian Patent N°166644 "Plow" (Bodenarbeitsgerät); Granted on August 25, 1950 (5 Figures). Page N°13

(8) Austrian Patent N°196680 "Tubing for Flowing and Gaseous Media" (Rohrleitung für flüssige und gasförmige Medien); Granted on March 25, 1958 (4 Figures). Page N°15

Appendix: Updating Schauberger's Ideas

Photos, Drawings and Formulae from Gottfried Hilscher's "Energie im Überfluss" and from Peter Lindemann's "A History of Free Energy Discoveries" (section on Viktor Schauberger); which indicate how to extend into working devices the ideas originated by the amazing Austrian researcher/inventor.

First Writing Terminated on October 10th, 1988

## VIKTOR SCHAUBERGER'S PATENTS

by Jorge Resines

This is the translation of eight Austrian patents, which numeration will be known as the text unfolds, granted to the late Viktor Schauburger and which are a "Must" for all of his followers.

For a better understanding of the section on Schauburger in Peter Lindemann's excellent "A History of Free Energy Discoveries", you should first read these patents and later (or along as you go) the forementioned chapter. As in two patents (the first and the last, curiously) the drawings were of poor quality in their reproduction, I was forced to re-draw them and this I did by making xerocopies of undertoned kind and later carefully copying what they revealed.

The patents are translated by date of granting, and were deleted the final "claims" that add nothing to the knowledge imparted by the writings; this being the only liberty in edition I have taken.

At some patents you will notice that I have included the illustrations within the text, this I did so that the readership may have a more direct view of the subject as the text unfolds.

(1) Austrian Patent N°113487 "Construct for Creating Wild Brooks and Flow-regulation" (Einbau zur Wildbachverbauung und Flussregulierung); June 10, 1929.

The invention corresponds to a construct for creating wild brooks and flow-regulation through the speed of water that is dammed, so that with orientated stones no destruction may come along the course of the waterpath through the dancing constructs, and to place the central line of the watercourse in the middle of the stream.

In the drawings (see next page) is the invention illustrated, at Figure 1 is an example of water-conduction (Ausfuhrung) and damming in the shape of transversally-placed dans.

The dans (1) are hollow and made of concrete placed arid anchored at the ground through suitable anchorings (2), so that they may not be displaced by the streaming water. They are placed as striations against the direction of the water-flow, upon which the water runs and along which it will sluice; through this coursing the water loses the greatest portion of its energy and does not strike too hard against the placed dans forcing them out of place.

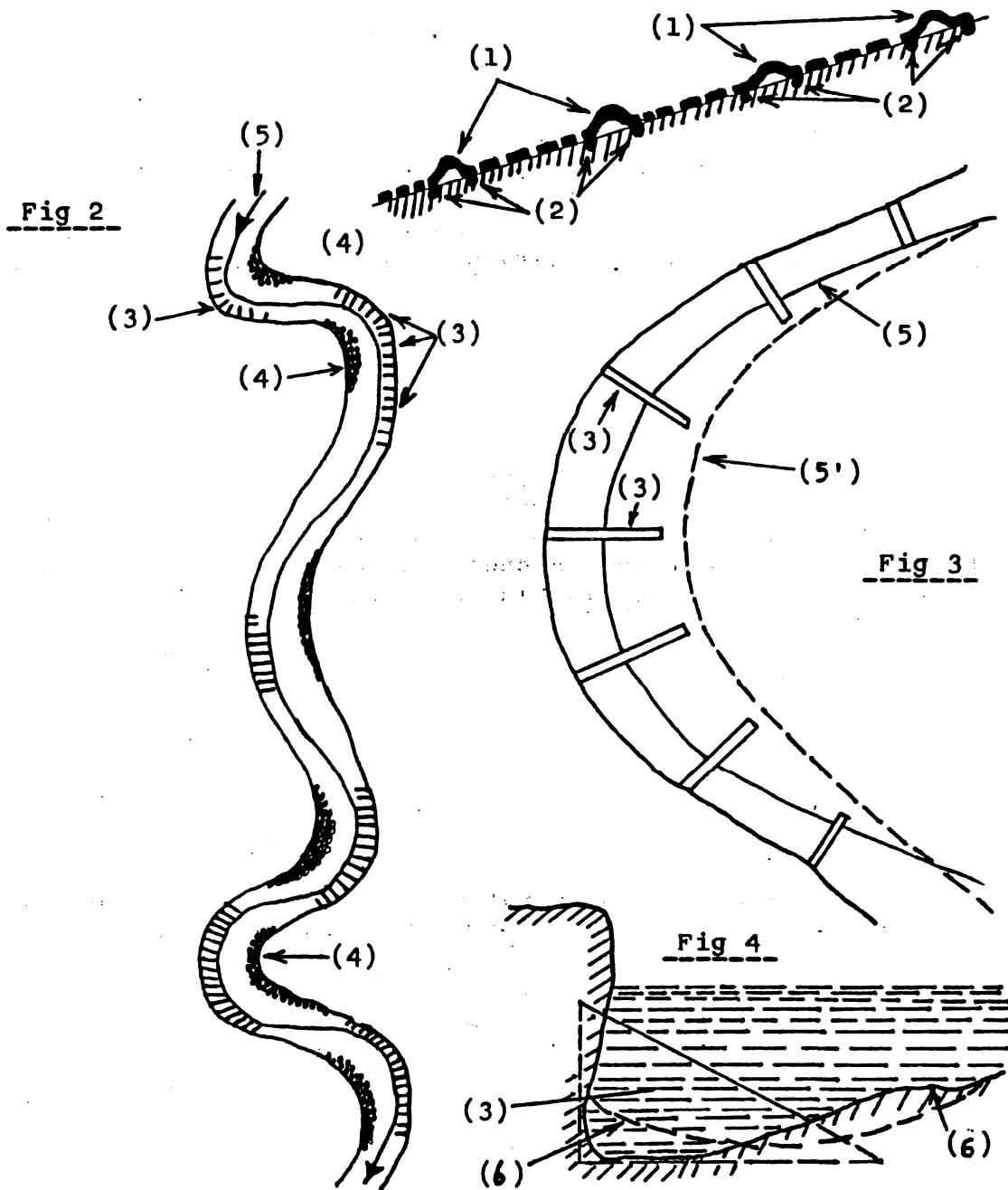
The dams can be placed at far or snail distances from each other in the course of the constructed brook. In order to lay the theoretical middle of the stream in the midst of the flow in far-off places and also to prevent the destruction through erosion of the river shore, we will place constructs by the sides of the flow that act as dans as seen at Figure 2 (see next page). In this figure are indicated by (3) the dans, while stones are placed at (4) in opposite places. Through them runs the middle line of the waterflow (5) as illustrated. Figure 3 (next page) shows in greater detail one of such constructs and Figure 4 a transversal cut through one of them.

The constructs (3) are essentially triangular-shaped, and are jammed into the soil against the shore so as to elevate and make flow the water towards a middle point.

The effect made by these constructs is further illustrated in Figure 4, where the dashed line (6)-(6) in the transversal cut of the ground before the construct, which obliges the ground to place itself along the dashed line because of the disturbed waterflow.

(2)

Fig 1



Between constructs (3) are placed the orientated stones and this builds close to them next to the shore a zone of Stillwater, that also serves for the purpose of directing the waterflow and to protect the shores from erosion through water (Figure 3); the full line (5) indicates the middle of the stream in the corresponding construction, while line (5') - dashed - indicates the line of middle in the brook under the effect of the constructs.

(2) Austrian Patent N°122144 "Artificial Channel for Transporting Logs" (Kunstliches Gerinne zum Schwemmen von Holz u. dgl.); April 10, 1931.

The transportation of logs and other varied loads through water channels and other artificial channels, though its low cost makes it competitive against other transportation means, suffers under the condition that when moving along the water flow some logs, specially in the curves, tend to remain stuck; in this way stop the following logs, diminishing the general speed of the transport; this is specially true for hard and dense woods that remain at the bottom of the channel and move forwards very bad.

It is known that the speed displayed by logs in water channels is greater than that of waterspeed; at those places the speed of the logs greatly surpasses that of the transporting medium and it is seen from itself that the swimming log creates before it a waterwave (see Figure 1, next page), we have a log (H) which generates a frontal wave (0) as it moves.

While lighter wood (see Figure 2, next page) swims without problems, heavier wood sits itself at the bottom of the channel (see Figure 3, next page) and remains stuck; therefore the water impulse in channels is not enough until now to produce the usual notion through sliding without outwards water spillage. The invention pertains to a discovery that corrects these evils, namely the elimination of water spillage through the implating of wedges made of wood and the transportation of hard and dense woods through sliding in the channels. The speed of water depends over all also on its sliding over the channel walls; in the usual slanted channels, this important factor is eliminated because of their construction.

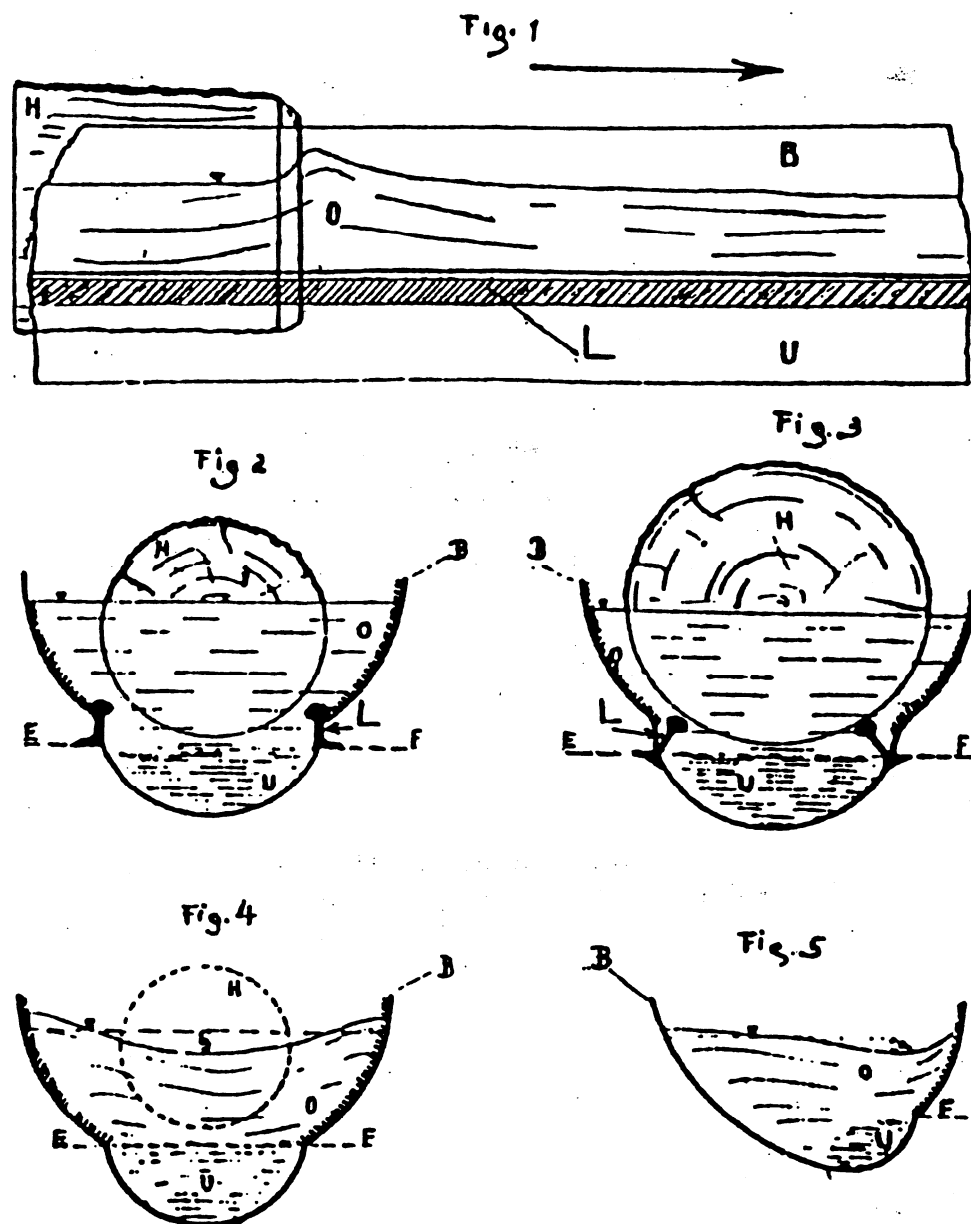
The channels' cross-section is not semicircular or straight, but rather, as seen in Figures 2, 3 and 4 (see next page), semicircular (B) with an added semicircular bottom (U) which radius is half that of the upper portion (B), so that along the line (E)-(F), see Figures 2-3 (next page), a resting portion (L) can be included; the internal wall at the upper semicircular portion is of striated Material (unretouched cement, directionally-nailed woods, etc), and the underlying portion (U) of a sliding material (flattened cement, polished wood, etc) so that the waterspeed in the under region (U) is much greater than at the upper part (B).

This causes at once the sinking of water in the middle of the stream (see Figure 4, next page) when in practice a weight falls a certain distance that the water striking against the striated channel walls moves further, maintaining the mass (H), see Figure 4 (next page), in the midst of the flowing medium by means of the polished underzone (U) that displaces the fluid faster.

When transporting floating light woods (Figure 2, next page), this will not cause any disorder in the flow of water, for the underzone (U) will run faster than the upperzone (B), in this fashion it will not be necessary to build dams outside the channel to contain the spilled water.

From light woods we must expect little problem, with hard and dense wood we must expect it to sink deeper and to advance with difficulty, so that this kind of wood will sink itself into the faster-running underside (U), and advance in





this fashion as if advanced by a transporting band.

When transporting hard and dense woods (see Figure 3, above) come into play different laws; the wholly submerged log (H) unloads its whole volume into the faster-running water, so that the pressure upon (E) and (F) of the submerged sliding skids (L) makes them enter in action; for this time the usual impulse of water is not enough to make advance the log (H), that if these means are not added must remain stuck into the bottom of the channel.

The sliding offered by skids (L) lightens the log (H) deposited upon the faster running flow (u) and makes this use its impulse to propel the heavier log forwards.

In opposition to the present (1931) transportation of hard woods through channels built with hardened materials, the hard and dense woods will be transported by doubly-concave channels which walls are built with lighter materials for they are not obliged to withstand such heavy loads; in curves, where the moving wood is obliged to follow them we can through the proper construction (see Figure 5, above) of the channel, with only a one-sided channel wall, make the log

move towards the outside where it will be held by the running water along the curve; if needed we can add sliding skids as seen (L) which can be improved by the addition of wheels.

(3) Austrian Patent N°134543 "Conduction of Water in Tubes and Channels" (Wasser-führung in Rohren und Gerinnen); August 25, 1933.

This invention relates to the concentration of flowing water within polished conduits (pipes), channels and tubes, so as to increase the amount of flowing medium passing through them.

The inventor has discovered that when a certain kind of turbulence happens in flowing water, then a temperature difference takes place within it; producing also a difference in the water speed, and that this happens specially in Waltz-like flows.

It is known that to hinder sedimentation, water channels and tubes are built of circular cross-section, so that the flowing medium may drag with itself any sediments left; this is to provoke a "screw-like" movement of water so that it may attract all particles in its path.

This invention pertains to a further development of this principle, to drag sedimentated masses with moving water.

The main idea of this invention is seen in Figure 2 (next page) where the usual path of flowing water (4) is detoured by a wedge-shaped device into a different way (5).

Figure 5 (next page) shows an improvement of this idea by adding striations (6) to the wedge placed on the inner wall of a channel or tube.

In Figure 1 (next page), we see the wedges grouped (2)-(2')-(2'') in groupings of three, and producing as a result the screw-like flow (3)-(3')-(3''), through the internal portion of the conduit (1).

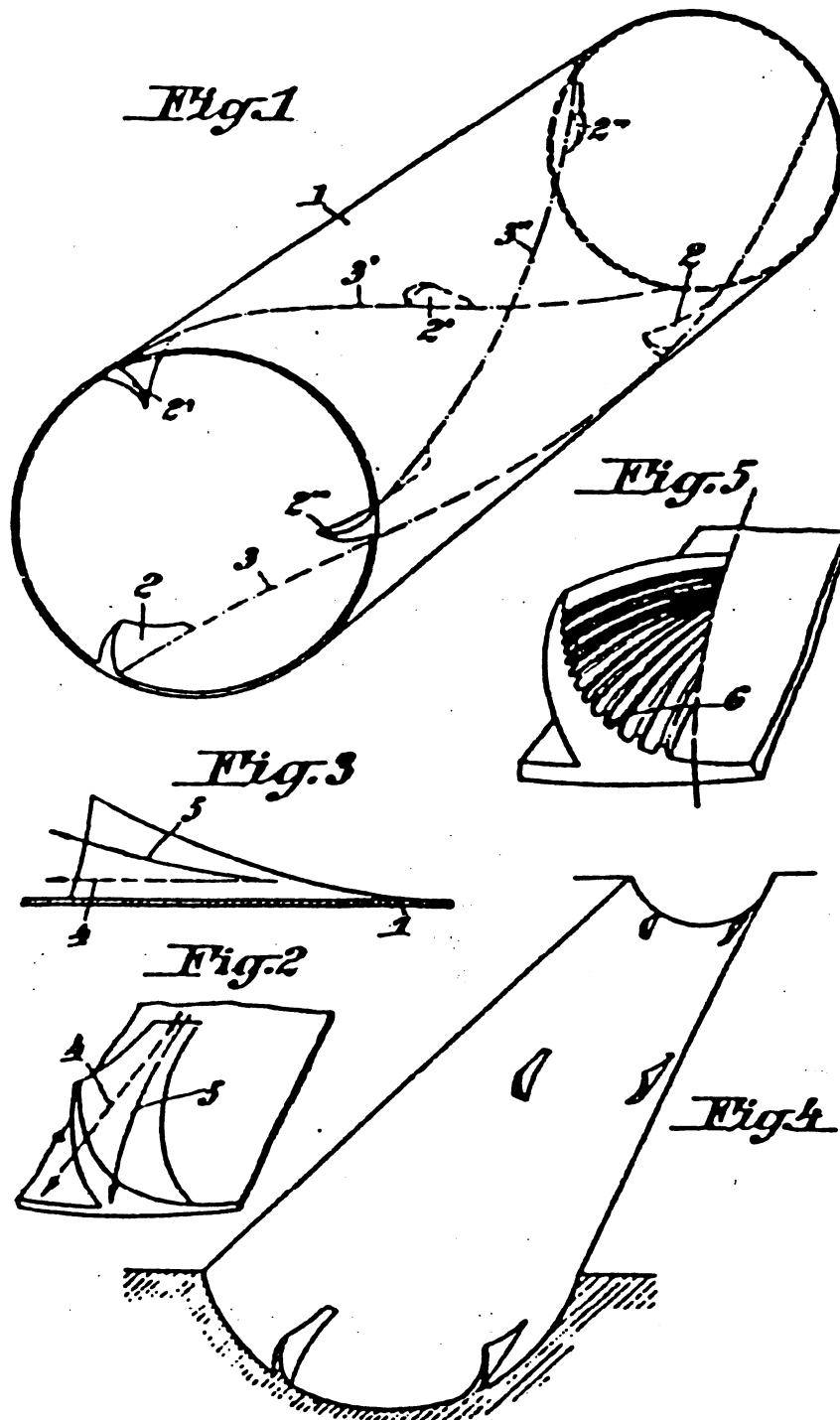
This makes the waterflow concentrate at the center of the tube, with a concentric motion, dragging along any particles left upon the walls. Figure 3 (next page) also shows, in a lateral view, how the normal water path (4) is changed to a concentric one (5), to generate a concentric flow in the flowing medium.

Figure 4 shows how open semicircular channels can also be adapted to the same purpose.

(4) Austrian Patent N°136214 "Installation and Correction of Flow in Draining Channels by a Contention and Stabilization in Higher Level of Dammed Water" (Anlage und Einrichtungen zur Regelung des Abflussgerinnes von Staubecken und Festigkeitserhöhung deren Abschlussdammes); January 10, 1934.

This invention pertains to an installation related to the conduction and regulation of flow in water channels by contention and stabilization in higher level by means of darts integrated into them that depend on the outer temperature of flowing water and the mixing at will of light and hard water conducted out of the basin by its own means, with which it is convenient to direct the outer-flowing hard water for cooling the layers of lateral walls of the dart of the basin, as will be shown herein.

It is known that for the management of water channels in all channel-building techniques that a weighty argument such as water temperature in Earth vessels and air temperature as the temperature difference between still and running water, is always left out; and it is also known that the temperature differences between two (or more) watercourses modifies their speed when they mix.



So far, only through artificial constructs in dams, the naturally-built water channels running underground or only through ramparts (where only hard water with a temperature close to  $+4^{\circ}\text{C}$  comes out) or by means of aqueducts placed atop dams (through which channels only lightwater of high temperature flows), finding obstacles in their coursing through the channel and causing erosion in their shores.

However, through a channel can also flow those waters with the corresponding right temperature, so that they can be directed to dashing the water-masses and to diminish their forward-going impulse or to increase their speed and their forward-going impulse in the willed direction. We can also effect works of shore-protection just by correct regulation of water temperature and also through

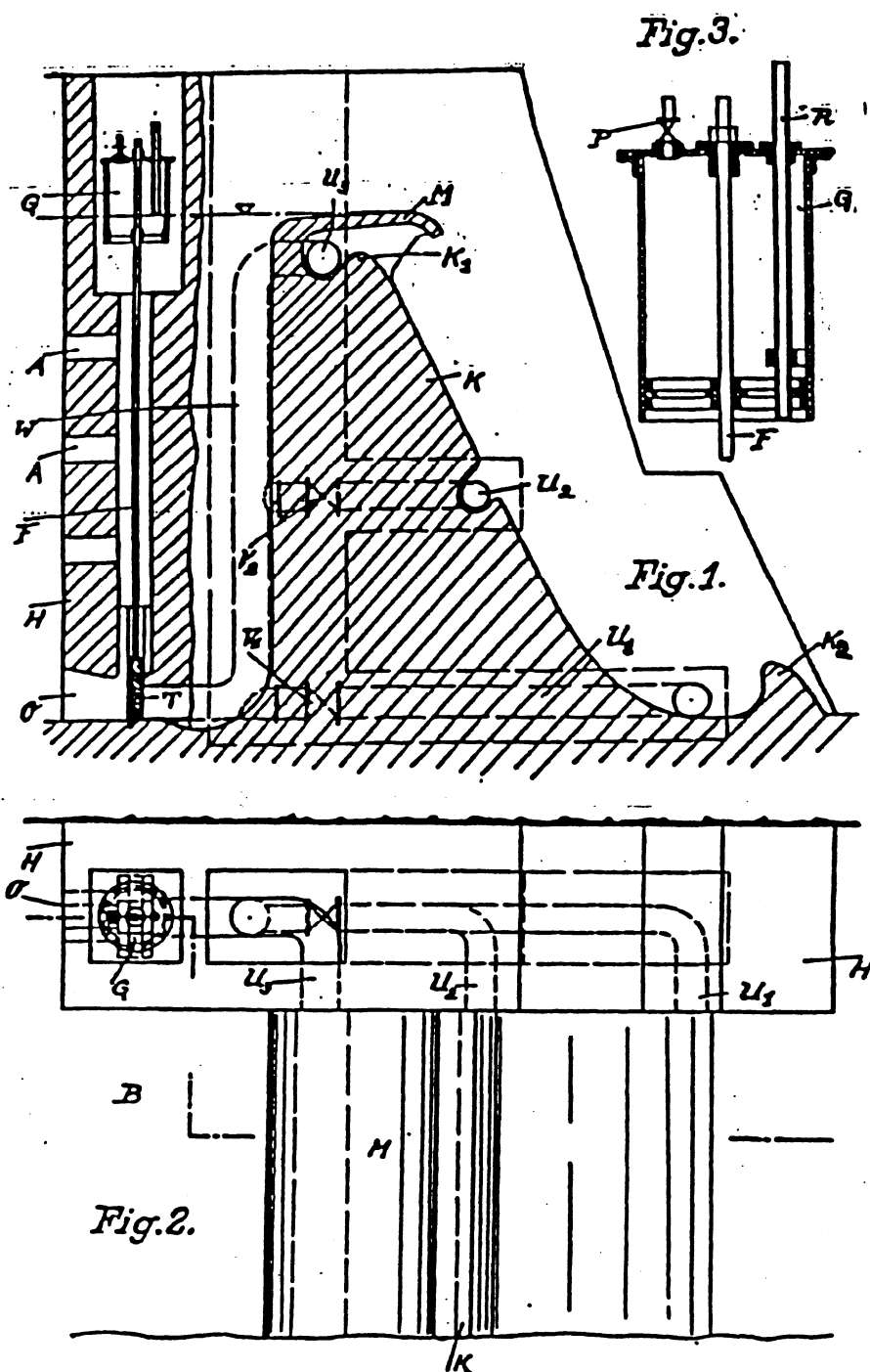
the emplacement of dams which capacity of endurance is directly proportional to the amount of water dammed and also to achieve an obstacle-free flow of water. The widening of the channel through the emplacement of stones or elimination of sane (ballast-banks) and elevation of the shore, specially in curves, can be made by the corresponding directing but usually provokes a counterflow that erodes the whole work. Through several devices that will be explained here, it is possible the steering of both light and hard waters, corresponding to the temperatures of each and also to the related fall of temperature, so that by means herein explained each water will run along its own level.

At the same time with the regulation of the waterflow it can also be effected the necessary installation, in the closing dam of the basin-corresponding construction, of those pipes that will effect the cooling of the dam's pores through the sides of the dam by means of small watercourses directed through the materials

Then as temperature diminishes, the water within the dam's pores loses its attraction for dissolving salt and other stuffs, until it reaches its balance point at  $+4^{\circ}\text{C}$ , at which its capacity for dissolving is the least and the filtration in the dam's wall is the strongest. So far, it is then when the light water infiltrated in the wall for cooling will go inside the materials through the pores, in this moment the channel walls close to the dam are filled with hard water at a temperature of  $+4^{\circ}\text{C}$ , which lose their salts into the neighbouring ground as they move, creating in a few weeks of impregnation a further barrier against erosion. When the stuff gets into the pores of the dam's walls, then the shine of the Sun rays will warm the waters, further crystallising the deposited salts and increasing the resistance to erosion, and if the frost comes then it will also contribute to the strengthening of the walls. (Please, go to the illustrations of next page from now on) In the drawings we find a further explanation of a device for this kind of installation, it is seen in transversal cut in Figure 1 and in upper view at Figure 2; while at Figure 3 we appreciate an internal view in cutaway fashion of the apparatus for steering water.

To the sake of regulating the flow of cold hard water and warm light water are placed groundnozzles (O) in the damchamber (r) of basin (B) on both sides of the dam, which doors (T) are activated through a floating device (G) that moves because of temperature differences. The pipes (W) of the nozzle (O) lead up to the upper-placed portion (K1) where flow conduits (U1)-(U2)-(U3), which are closed through gravity-activated valves (V1)-(V2), branch in different heights from the upper-going pipe (W), and that lead further into the lateral wall of the basin, spreading out there into the corresponding casts. At the feet of the dam's internal wall will be conveniently placed, the outstanding portion (K2) to produce a whirling and better mixing of the watermasses flowing over the wall. The door (T) in the nozzle (O), cleaves the soil of the waterchannel sinking itself into it and it is connected vertically by means of a shaft (F), coursing inside the dam's wall (H), with the floating device (G) that is built as a submersible bell. In the illustrated wall (H), we find at different heights over the ground-nozzle (O) tube-shaped outlets (A) that are communicated with the tube leading upwards to bell (G) and that allow the automatic emptying of the water basin.

When the pipe (W) is allowed to fill through the opening of door (T) it will allow a communication between the pipe and the basin, that will release pressure from door (T) unilaterally and in this fashion allow its free motion upwards. The door (T) should be built out of wood to allow the free motion of the bell (G) when the right water level is attained. The floating bell (G), which connec-



ting shaft (F) goes downward, can in this fashion, and because of the only motion it is allowed to make, float upwards; (see Figure 3, above) the bell (G) has an airvalve (P) through which opening can be introduced pressurized air within, so that the door (T) will be activated at once. Through both an open ending and with the outstanding tube (R), we can through the floating up or down of the bell create a flowing of water.

When the diving bell is fully sunk, without any airmargin, it acts as a total closer of the valve; and when we inject air within it, then raises to allow the opening of door (T).

In normal work, the atmosphere imprisoned within the bell (G) is equal to the usual atmospheric pressure and thus the outer temperature of the environment acts as a control; depending on the imprisoned airvolume within (G), the outer temperature will make it raise or descend, allowing the steering of door (T)

upwards, so that the "mass of hard water that will be conducted through the nozzle (O), the pipe (W) and the flow tubes (U1)-(U2)-(U3), will depend on the changes of outer temperature; the light water flows over its own flowing plate (M) placed atop the dam's crown in the basin.

The interpenetration (Durchmischung) of light and hard waters can be proved through the construct (K2) placed at the foot of the dam's inner wall, and also because of the fact that hard water falls vertically while light water does so spirally through flowtubes (U1)-(U2)-(U3), so that during their fall they will combine.

Through heating from the Sun's rays the diving bell (G) will further rise the door (T) and through the channel a larger percentage of hard water will be eliminated with respect to the light water that flies over the dam's top, and instead with cooler external temperatures the door (T) will remain either totally or almost totally closed and the channel will only conduct warm overflowing liquid.

For a better mixing of light and hard waters flowing over the dam's top. I have placed the flowtube (U2) in the lower part of the dam's wall (K), so that it will further lead hard water, to move upwards the bell (G) and thus open the door (T) to prevent the waters from overflowing the basin's level. The water flowing within the dam's lateral walls contributes to further cooling them and also to leave deposited salts and other stuffs that it loses when reaching a temperature of +4°C.

By opening the flowtube (U3) atop the dam's wall, the upper portion of the dam can be affected as indicated in the former paragraph; the welfare of the dam's walls (in all its portions) needs this process of impregnation so that its pores are closed and no filtrations may happen.

The upper plate (M) serves to both allow the overflowing of lightwater and to separate the hardwater flowing through conduit (U3), thus helping to further its endurance.

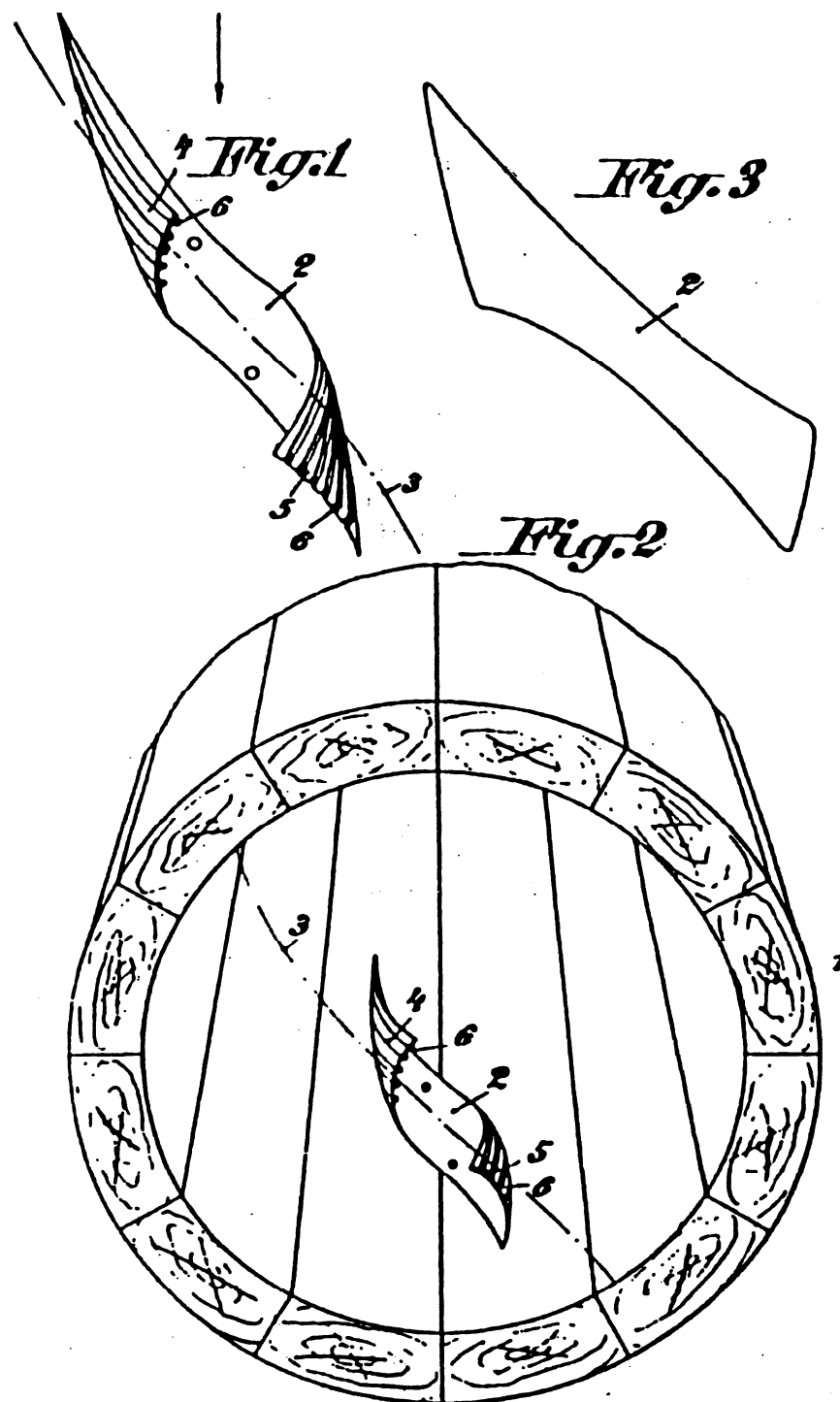
#### (5) Austrian Patent N°138296 "Water Conduction" (Wasserfuhrung); July 10, 1934

This invention pertains to a further improvement of the tubes and channels shown in Austrian Patent N°134543, where the water flowing within a conduit is lead into the middle of the pipe to force it to effect a circular motion, as seen in the forementioned patent.

This invention pertains to an improvement of said idea by conveniently placing in the water's path a device to produce whirling motions in the fluid. The simple emplacement in the outerzone of the device will create a turbulence between the center and perimeter, so as to generate a well-defined flowzone in the center and layers of well-established stability from the perimeter inwards. The devices enplaced are of the kind illustrated in Figure 1 (see next page), where we have an element (2) with its two ends bent (4)-(5) and striations dug out at the back (6); this device -when inside the tube (1) as seen at Figure 2- will meet the incoming flow and twist it along the new path (3), so as to create a circular motion in the liquid.

Figure 3 shows the device of Figure 1 straightened out so as to see its true shape.

Note from Translator: If you look carefully at Figure 3, next page, and do a reproduction of the device (2), extending later the curves of the ends, you will notice that they do form an egg-shape! I wonder which were the experiments that lead Viktor Schauburger to elaborate this device?!?!?!?



(6) Austrian Patent N°142032 "Construct for Fabricating Tap Water like that of Natural Springs" (Verfahren zur Herstellung von quellwasserähnlichem Trinkwasser); June 11, 1935

It is known that, to fabricate mineral water through devices, without any unhygienic condition in the pipes or through the mixing with salts and compressed gases under a pressure of at least 2-3 atmospheres, this is usually made under an even higher pressure.

It is also known that to generate soda water the water will be mechanically made to flow through a carbon-acid under a pressure of 12 atmospheres, so that the corresponding enrichment in the forementioned cells make the water "active" And in other procedures this is done through "cracking".



The creation of artificial mineral water will also include carbonic acid under more or less great pressure, of at least 1 atmosphere, so that the salts will mix evenly, as is done in several kinds of mineral water; and in other kinds of waters there is a light dissolution of carbonates (for example Sodium Bicarbonate) and also a passage through chemically-weak acids (such as tartaric or citric acid) that also include carbonic acid, obtaining from here a prickling taste. In the forementioned procedures it is necessary, for making the water, be not simply in free form but in combination and that in each relation a good mineral water be produced, so that the final product be as similar as possible to natural springwater.

(Please from now on, refer to the illustration in next page) Sterilised water flows through mercury light of cold kind in tube (m) and mixes itself with the diluted salts coming from (1). In container (C) are diluted the mentioned salts in water and through revolving fan (g) well mixed. The mixture and kinds of salts direct themselves naturally through the sterile water outlet and so do with different and permanent degrees of hardness.

On the other side, so that the concentration is not too high, the artificially generated mineral water's hardness must not exceed factor 12 so that industry may not be hindered by it; anyway outgoing water does need for every 10 liters outputted 1 liter of diluted salts in the following constituents and proportions:

Sodium Chloride (NaCl)	0,02 g
Magnesium Sulphate (MgSO <sub>4</sub> )	0,02 g
Sodium Biphosphate (NaH <sub>2</sub> PO <sub>4</sub> )	0,02 g
Potassium Nitrate (KNO <sub>3</sub> )	0,008 g
Calcium Oxide (CaO)	0,2 g

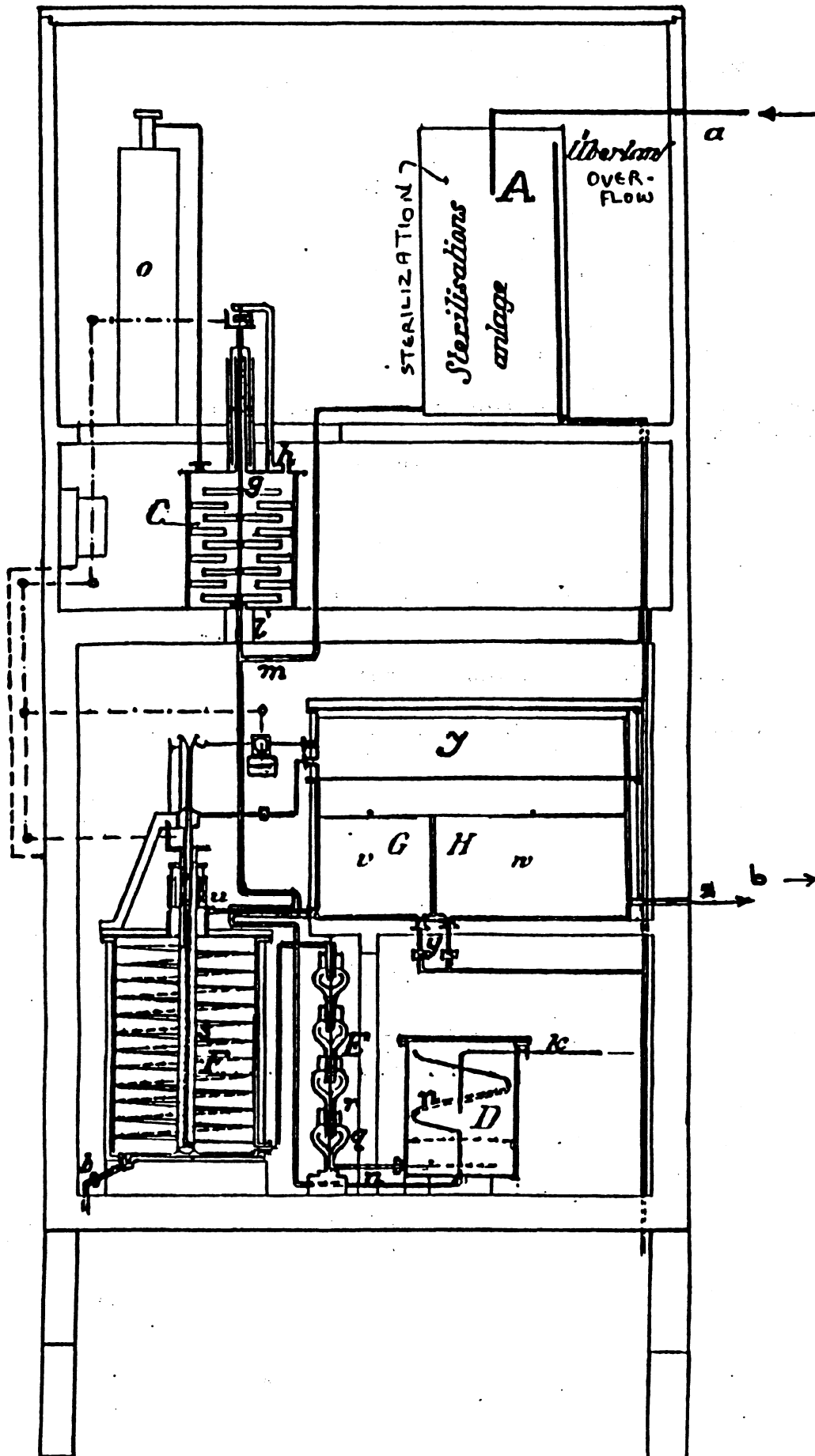
The kind and proportion of these salts are the results of several hundreds of experiments. While the Calcium oxide dissolves itself in water, on the other side the Calcium Hydrate is very sensible to the Oxygen in the carbonic acid, and thus is affected by the oxygen of the acid and the light being showered from upon.

To the sake of regulating the liquid flowing out of container (C), this is inside at a constant pressure of 0,1 atmosphere = 1 meter of acid water; the concentrated diluted salts will fall dropping along the pipe (1) and when mixed with the contents from (A) will flow into the apparatus (D) which turns them into droplets, where they will jump from the outflow holes of pipe (n) towards the walls of the apparatus (D); during the process the water already processed through carbonic acid will flow outside through the tube (k).

The droplets of both mixed liquids falls downwards and mixes itself in the way, as it happens in nature where the droplets of rain first lose their salts and diluted gasses when hitting the ground; this mixed water flows within and through the Tulip-glass device (E), where it always goes up in the outer tulip glasses and down in the inner ones, so that it will pass into the other following tulip glass vessel after it has climbed into the innermost one of the former stage and thus continues its flow. The water does make a meandering motion to carry on the following indicated goal.

The gas, specially carbonic acid, collects itself in the upper portion of the tulips and will then, through the corresponding growing pressure, flow through pneumatic tube (r), in which finest nozzles is also injected water for flowing, so that each carbonic acid that is not already combined will later be with the water. On the axis of this device's stages are placed alternatedly gold and sil-

(12)



ver foils, isolated from each other; between both metals there is an electric potential that creates a reduced ionisation in the flowing liquid. In its further motion, water penetrates into the main mixer (F) which is an insulated-against-heat standing cylindrical device, that is silvered within and in of which is located an upward-spiralling path which direction of winding goes against that of the snail and is made out of wire mesh.

On the spiral's surface are orderly placed cooling spirals, that take the temperature of water from 17°C to 4°C. The goal of this temperature fall is to properly combine the chemical elements; through the cooling will be increased the absorption of gases in water, on the other side it makes possible the combination and enrichment of free carbonic acid of the resulting masses without the usage of pressure.

The  $\text{Ca}(\text{HCO}_3)_2$  presents a weak exterior combination that the enrichment with the forementioned carbonic acid in water had worked out, but it is only possible the enrichment of  $\text{Ca}(\text{HCO}_3)_2$  with carbonic acid through cooling in water and the maintenance of an even temperature.

The temperature of outflowing water must not be over 20°C and its final temperature (once it was processed) should not be over 4°C; also must be taken into consideration that the speed of flow must not be too fast so as to allow the proper mixing of liquids; after abandoning the container (F), the liquid is made to flow through gold and silver foils until reaching vessel (I), which is divided into chambers (G) and (H).

First the water that overflows from (G) falls into chamber (H), and so on out of the device (z).

By the treatment of water as indicated, many reactions are produced, first of all the water is made wholly drinkable; also it is necessary to eliminate any possible exposition to light during the process for the falling of light over the treated liquids produces a loss of quality in the final results.

#### (7) Austrian Patent N° 166644 "Plow" (Bodenbearbeitungsgerat), August 25, 1950

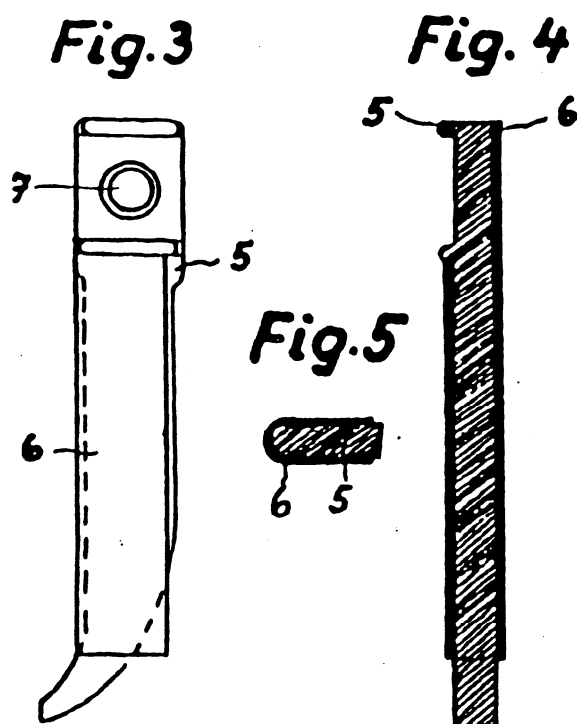
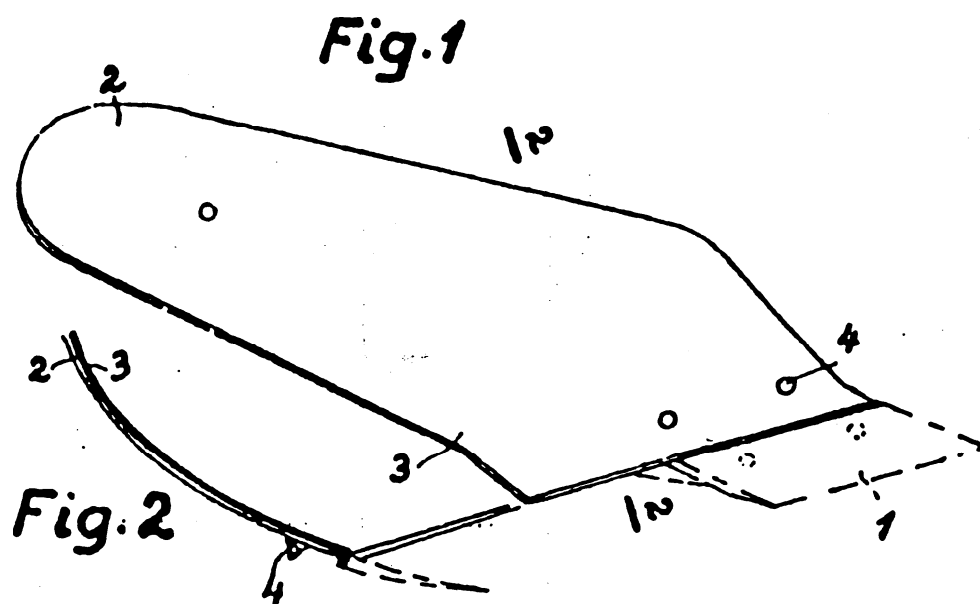
It resulted from numerous experiments that a better ploughing of the soil can be made, instead of using plows made of Iron or Steel, with Copper-covered plows; this difference becomes stronger when one notices that speed of ploughing becomes faster and that the friction between the ground and the corresponding portion of the plow is greater.

This effect because of overspeed produces the slow desintegration of the Copper cover and the minute Copper portions deposited in the soil produce a catalytic effect, that in turn generates a better water-retention in the ground and also a further increase in quality of ploughing.

These findings were made when passing a plow which body was either covered or entirely made with Copper.

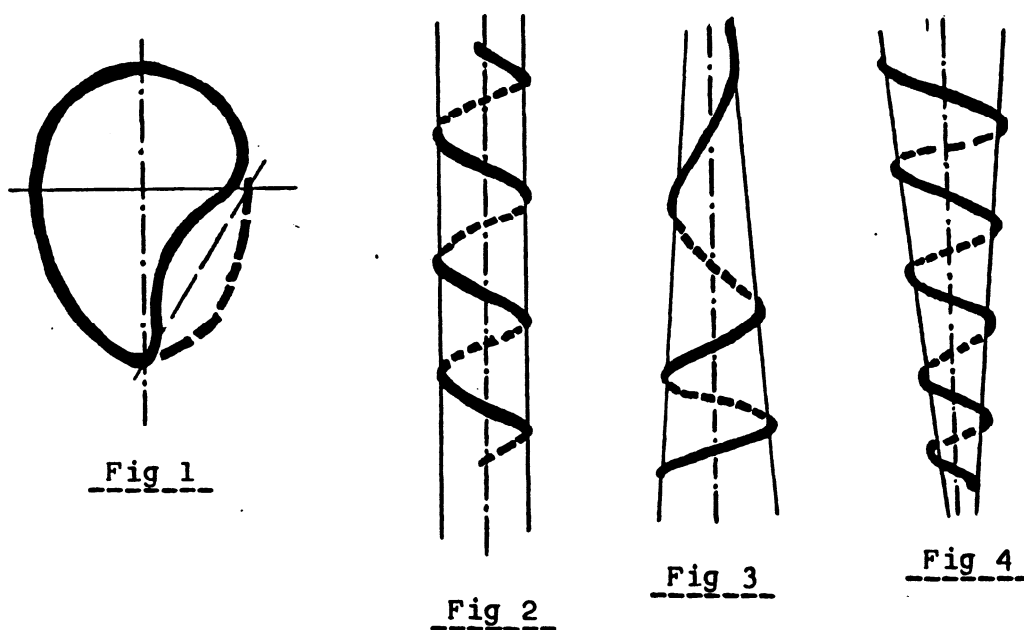
But as the building in whole of the plow with Copper is disadvantageous, then it will be convenient to cover those portions made with hard metal with Copper layers in hardened condition, which can be made through several different methodologies; the deposit of Copper particles under the ground does not break the magnetic permeability of the soil, as does Iron or Steel.

In the illustrations (see next page) are shown two embodiments for this invention, Figures 1 and 2 show a lateral view and Figures 3 to 5 show a transversal cut, a longitudinal cut and one plowing protrusion (Eggenzahn). In Figures 1 and 2 is illustrated a plow which point (1) is made out of Steel as usual, but it can also be covered with the corresponding Copper-cover; this portion cuts through the ground generating friction in the process; another is in the smaller portion (2), upon which upper portion there is usual a small he-



ap of soil because of pressure when the plow moves forward. It will be furnished with an endtail (Belag) (3), also made of Copper, that will create a "screwing" motion in the soil by means of sunk "screw" (4) located at portion (2). So as to make the whole of this latter portion hard enough, it must be hammered during construction.

The plowing protrusion (Eggenzahn) (5) corresponding to Figures 3 to 5, is made with a backward open sheet (6) of Copper; to fasten upon the protrusion the usual arrow, we use lock (7) of protrusion (5) placed at a high location and which is furnished with the corresponding key; here it is also convenient to place the Copper-cover through hammering upon the protrusion (Eggenzahn).



(8) Austrian Patent N°196680 "Tubing for Flowing and Gaseous Media" (Rohrleitung für flüssige und gasförmige Medien); March 25, 1958.

Already there are many propositions made for the conduction of fluid or gaseous Media so as to eliminate losses in pressure or speed of motion. Thus it is to prevent the formation of air vesicles that it is suggested an increase in resistance to flow as in British Patent N°409528 where it is described a tubing that has spirals engraved within and which area in transversal sectioning will be limited by two segments of circle arcs.

From the British Patent N°28543 (year 1913) comes a tube which transversal section is egg-shaped, which is furnished with guiding means to prevent the formation of water whirls. In the US Patent N°1,655,197 as in the Swiss Patent N°—126637, are indicated either conical or cylindrical tubes to the sake of limiting the sedimentation where the tube serves as axis for the dragging of sediments; this is further explained in Austrian Patent N°28099 exhibiting indented piping.

This invention pertains to a tube for flowing and gaseous media to prevent the forming of incrustations and to hinder the loss of flowspeed, which cross-section is made out of several circle arcs, being the tube wound helically and having its cross-section an egg-shape with an indentation (as seen in Figure 1, above), and helically wound (see Figures 2-4, above) around different forms. With the aid of such tubing will follow the reduction in friction losses and the hindrance of incrustations within the pipe made better; to the sake of increasing the former properties it is convenient to wrap the tubing and its cover around circular conduits, this axis of winding will also serve as axis for dragging along sedimentating materials, and will also contribute to reduce in scale the cross-section of the tube for winding.

Figure 1 (above) shows the cross-section of the tubing proposed and Figures 2-4 (also above) the different ways of winding the conduit. In Figure 1 it is visible the employed egg-shape with an indentation close to the (-----) line; the winding of the conduit can be made as shown at Figures 2-4 around an imaginary solid or in the form of a circular spiral, or in any other convenient way.

In the winding or in its cover, in Figures 3 and 4, we can scale the shape of

the winding to make it turn around those imaginary bodies or in straight line. And also can one arrange the tubing, in relation to the fluids conducted, to make the axis of winding equal to the one of dragging sedimentable materials to reduce incrustations and losses in flowspeed.

### Appendix: Updating Schauberger's Ideas

Now that the old patents have given us more background information to profit from the ideas translated by BSRF Associate Albert Zock, whose articles and translations comprise most of the section on Viktor Schauberger in Peter Lindemann's book, I think it is proper to update these data with more modern ones. To do this, in the coming pages you will find illustrations and photos taken from:

Figures I to XVI and XX, Gottfried Hilscher's "Energie im Uberfluss" (Energy in Excess), Adolf Sponholz Verlag, Hameln, Germany, 1981.

Figures XVII to XIX, Peter Lindemann's work.

The text about Schauberger in Hilscher's book is much less explanatory than the one translated by Associate Zock, so I will only translate the text under the illustrations and photos, identifying each:

Figure I: The letters PKS, placed upon Walter Schauberger's home, are for "Pythagoras-Kepler School", Biotechnical Academy; Pythagoras because he knew on the "Harmony from the Spheres" and Johannes Kepler because he studied cosmic orbits; they are the greatest of Schauberger's Spiritual forefathers for whom in their names is already demonstrated the School's reverence (see next page).

Figures II-III: Exhibit in the schoolroom of the PKS school; both photographs illustrate the differences between Euclidean ("Euklidisches") and Non-Euclidean ("Nichteuklidisches") forms through the examples of biasedly cut hollow bodies; if one cuts in slant a circular cylinder one gets the usual ellipse (upper photo), however a slanted cut of the "Tonal Tower" (see for more data, Figure V, page N°18), which is built according to the "Law of Natural Tones", yields as result the natural Egg-form (see bottom photo); it shows (as seen at left of Figure III), a circularly hyperbollic motion which inward sense of movement, indicating that a centripetal motion is possible, is shown in the waterwheel (see next page).

Figure IV: The "Law of Natural Tones" (Natur-Ton-Gesetz)  $1/n \cdot n = 1$ , Foundation of the Universe.

(The bodies of Figure III are built according to this formula) (see page N°18).

Figure V: within the Pythagoras Hall of the PKS school, we find pictures of the third great researcher of Nature whose teachings are followed by Walter Schauberger, his father Viktor Schauberger; in the foreground is the "Tonal Tower" ("Tonende Turin"), which outline is modeled according to the "Law of Natural Tones"; that the natural Egg-shape corresponds exactly with the Non-Euclidean Law of Natural Tones, as illustrated in the slanted cut (see Figures II-III, next page), we notice in the lower half of the tower (see page N°18).

(17)



Figure I

Figure II

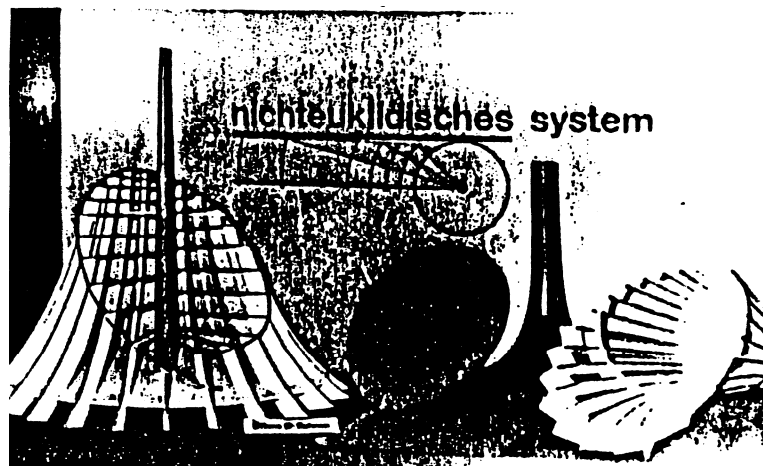


Figure III





Figure VI: The Hyperbolic Open System ("Das Hyperbolische Offene System"), which illustrates the geometry of the "Law of Natural Tones" that follows the formula of  $(1/n \cdot n = 1)$ ; (Viktor) Schauberger spoke on the "Fundamentals of Nature" ("Verfassung der Natur"), the open spiral appeared to him as "Illustrative of Matter's Structure" ("Strukturbild der Materie"); in Nature we always find open systems, never exists a return to the same situation/condition, as the spiral in the illustration clearly shows. The arrows indicate that the natural motion is centripetal inward-going ("einrollende") one, by means of which Energy in a system is conserved (see next page).

Figure VII: The waterwhirl reveals the structural constitution of the liquid element, for Walter Schauberger and his school the whirl is one of the uncounted illustrations of cosmic evolutionary pathways that follow the hyperbolic spiral in Nature: In far away galaxies, in the double helix of the DNA, and - naturally - in the snail; if man were to attach himself to the natural spiral-geometry he would soon find Euclidean geometry as useless; Nature is an open "Non-Euclidean" builder, Walter Schauberger follows Pythagoras who understood the Universe as a harmonical event that was encompassed by the "Harmony from the Spheres".

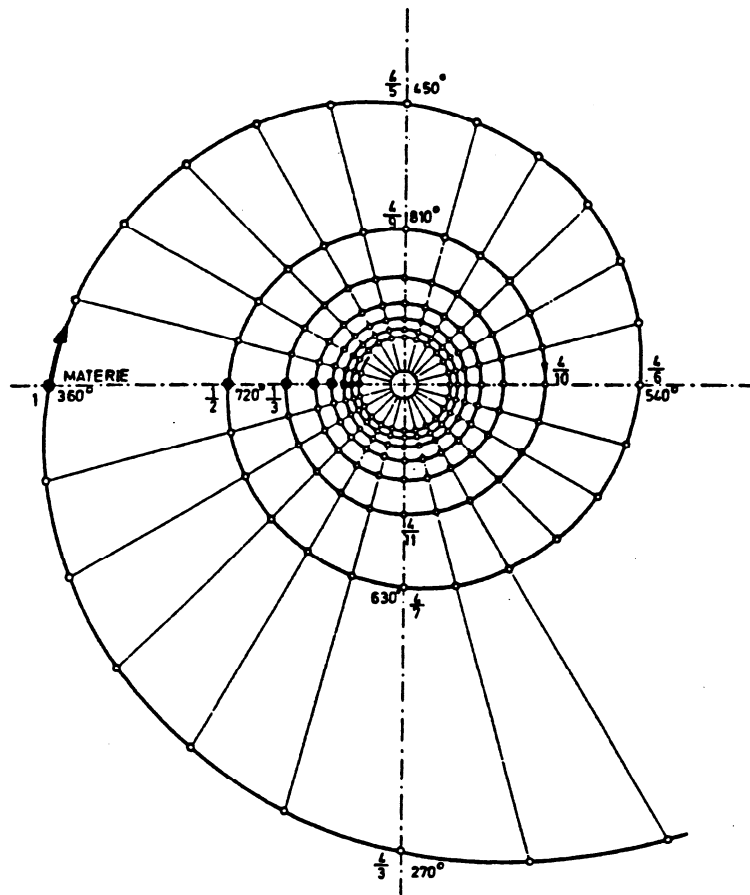
The "Law of Natural Tones" of the visible and audible, discovered in the old "Monochord" string instrument, gives Schauberger the foundation for the Non-Euclidean technology in his hands, which uses centripetal motions (instead of centrifugal circular movements) which are proper of water and air whirls (see next page).

Figure VIII: Another illustration on the "Law of Natural Tones", which according to (Viktor) Schauberger can produce a new technology (see page N°21).

Figure IX: The natural Egg-shape which is built according to the Non-Euclidean Law of Natural Tones, the legend (in German, translated below in this text) low to the right in this illustration is based upon the Schaubergerian statement that planets do not move in elliptical orbits but in "Open Egg-ways" ("offenen Eibahnen"); further demonstrations to such an effect are found in the Keplerian writings that Schauberger has studied in deep; the snail square, left-low, indicates that the Egg-shape, translated into technical devices, can be effective in the manufacture through nixing, dilution, emulsions, suspension or in the deep cleansing of waters through biological weans; the corresponding Austrian Patent was granted under number 2 45991 in October 1968 to Walter Schauberger.

(NFT:German text translated: "The law by Johannes Kepler does not correspond to actuality (Corrector!), the physical universe is an "open" system. It knows not, for example, the ellipse, the circle, the straight line, the point or a closed pathway") (see page N°21).

Figure XI: (a)Photographs taken at the "Photophoresis Experiment" made at the University of Vienna; with "Photophoresis" it is shown the phenomenon that ultramicroscopic particles under the irradiation of intensive rays go for or against the rays' pathway; a simple explanation of this phenomenon is yet unknown, we must wait still more until a deep study of matter, in the line of Schauberger, is made, (b)What we see as a "Whirling-cell" ("Wirbelsaule") is a Schauberge-



DAS HYPERBOLISCHE OFFENE SYSTEM.

$$n=0 \quad \left| \quad \frac{1}{n} \cdot n = 1 \quad \right| \quad n=\infty$$

Figure VI

Figure VII

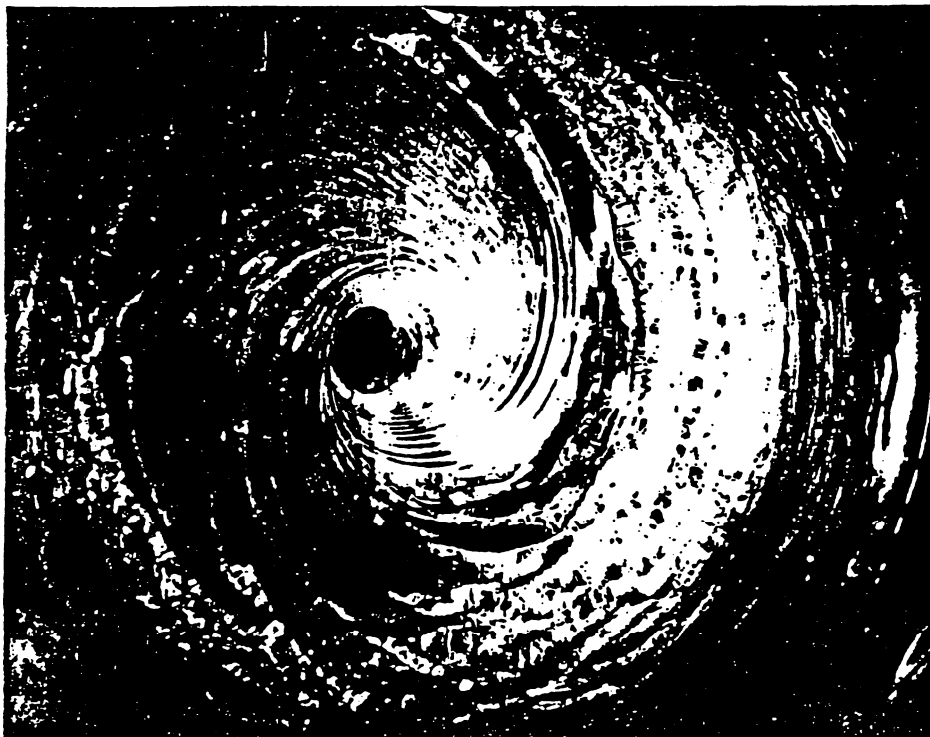
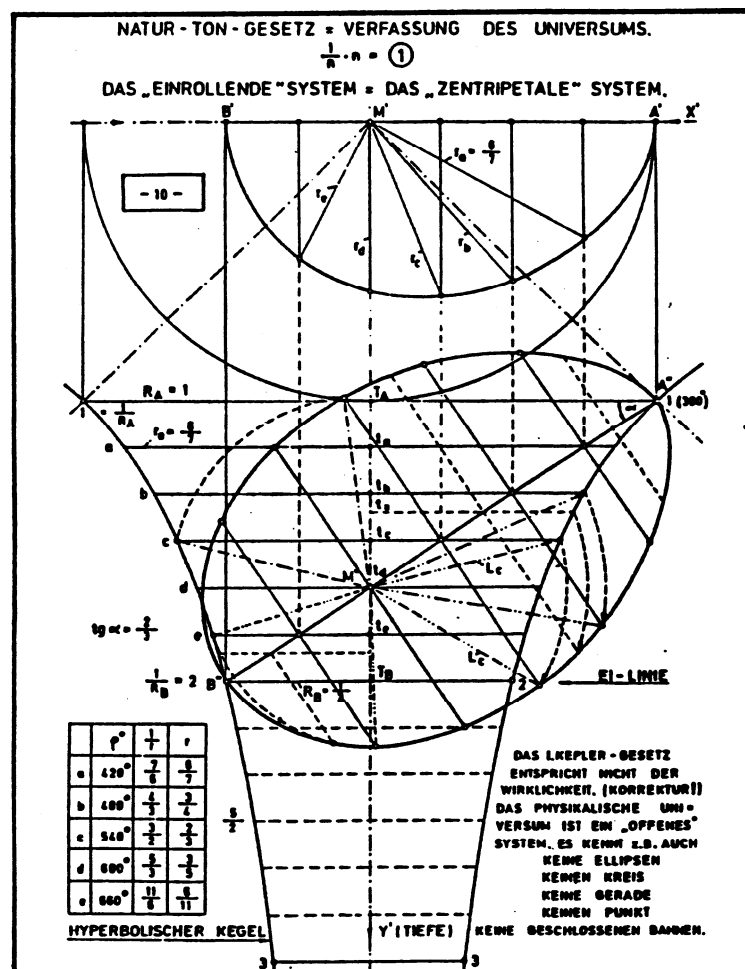


Figure IX



rian experiment of "inward-going" motion; structures and harmonics are clearly visible (see next page).

Figure XII: Structures of streaming water created by a rotating funnel that follows the Law of Natural Tones (see next page).

Figure XIII: Setup of the Watery Filaments Experience; two "Water Filaments" ("Wasserfaden") stream out of two nozzles passing through two metallic spirals ("Reizzone") towards two insulated containers; within each vessel is a Copper plate ("Kupferplatte") connected with a spiral ("Spirale") by means of an insulated Copper wire ("Kupferdraht mit Isolierung") in crosswise fashion; two spirals are held in place under the water filament by means of nylon filaments ("Nylonfaden"), both spirals are metallic and not covered by any insulation (see page N°24).

Figure XIV: Here are illustrated the pathways taken by the droplets generated when the watery filament struck the metallic spiral; Alexandersson described the energy thus generated as a pulsating bluish light that began at the opening of the nozzles and extended itself all over the excitation zone ("Reizzone" in Figure XIII)(see page N°24).

Figure XV: (a)The Swedish researcher Olof Alexandersson before his experimental device,  
(b)Watery filament coming out of the nylon nozzle (see page N°24),

Figure XVI: The photo at bottom shows how the watery filament begins to dissociate itself into droplets after passing the metallic spiral; the upper photo shows the energy travelling along one of the insulated copper wires (see page N°24).

Figure XVII: Another model of Schauburger plow (see page N°25).

Figure XVIII: Schauburger aircleaner (built at Switzerland by Schauburger Biotechnik Ltd); a ventilator throws soiled air into an egg-shaped vessel where it goes spiralling downward, collects water from a deposit, and ascends through the middle column where water and particles become mixed; particles and water descend by the lateral conduit and clean air goes upwards (see page N°25).

Figure XIX: Apparatus for biosynthesis (see page N°25).

Figure XX: Dynamics of the apparatus for biosynthesis: (M)Input of gases or vacuummeter; (F)Fluid to be agitated; (P)Pathway in outer side of liquid; (S)Central spiral in liquid; (1)Egg-shaped vessel; (2)Opening for (M); (3)Shaft for agitating paddle; (4)Flat egg-shaped profiled agitating paddle (see page N°25).

(23)



(a)

(b)

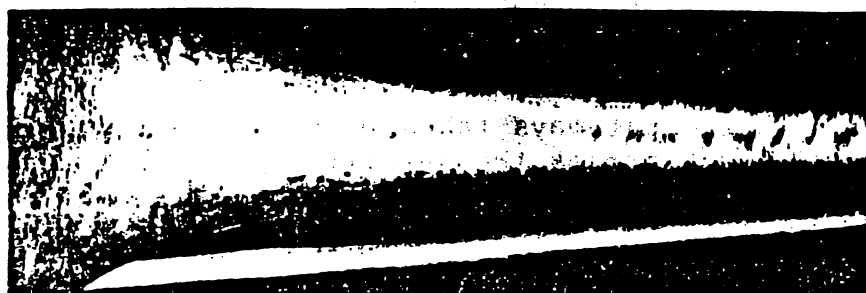


Figure XI

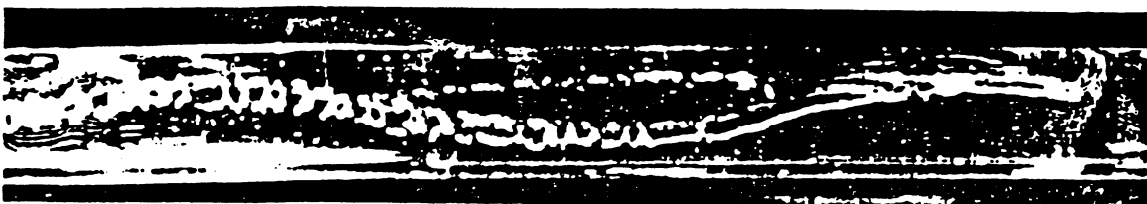
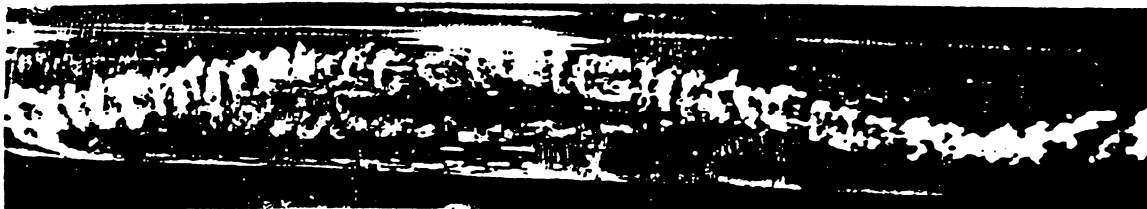


Figure XII

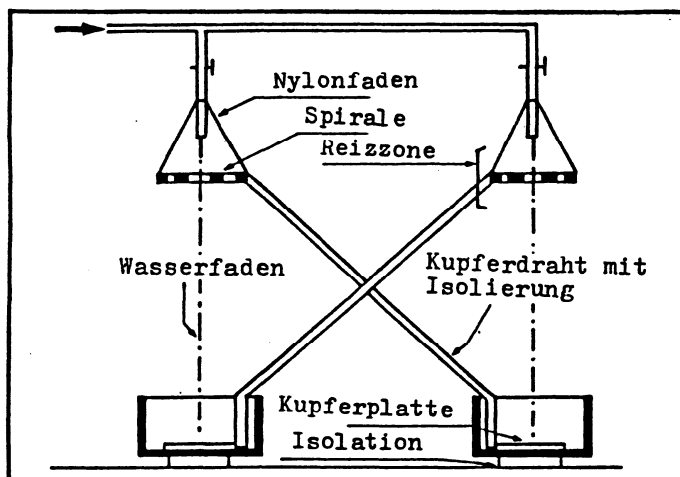
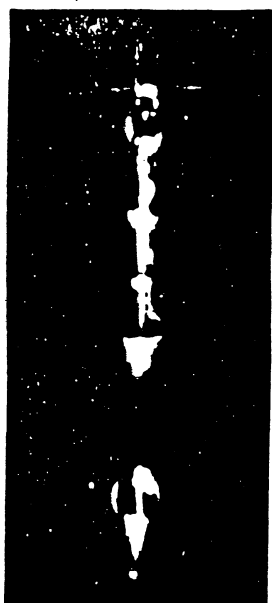


Figure XIII

Figure XIV



(a)

(b) Figure XV

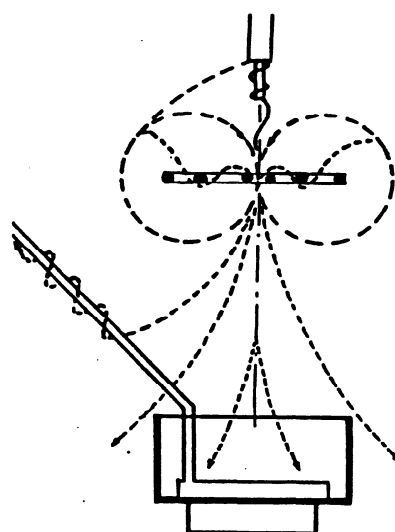
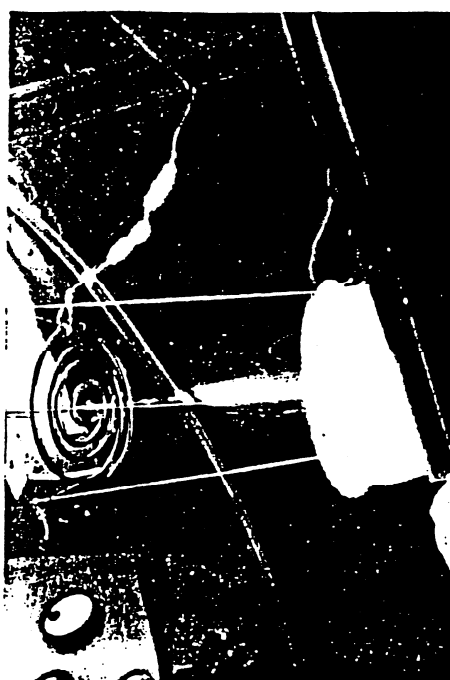
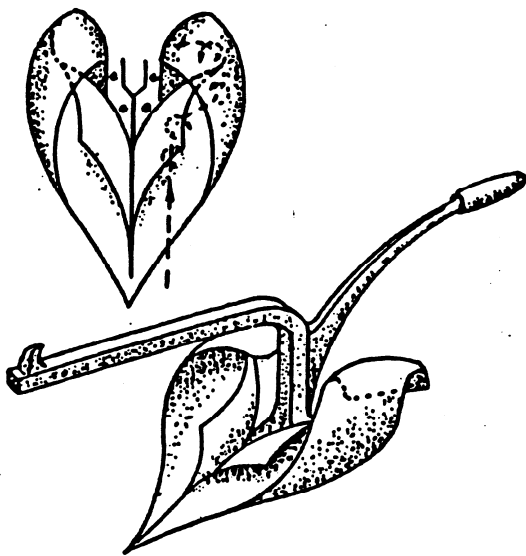


Figure XVI

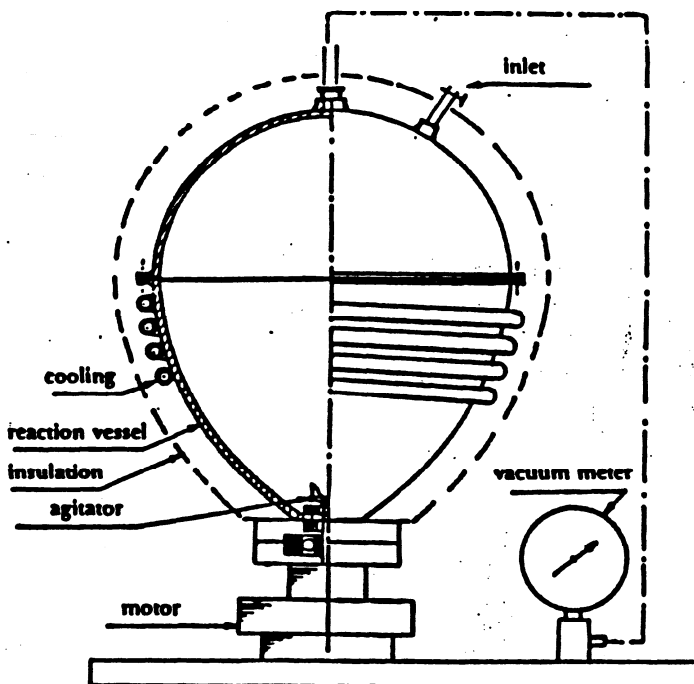




The spiral plough should duplicate the work of the mole. The dashed line with an arrow shows the movement of soil through the plough.

Figure XVII

Figure XIX



A schematic diagram of the apparatus for biosynthesis. The ingredients for biosynthesis are added together within the airtight egg shaped vessel made of synthetic material. The contents are then set into a hyperbolic centripetal spiral motion by the specially-shaped agitator. A cooling coil provides the appropriate temperature control. The vessel is enclosed within an insulation shell of hydrocarbon material to restrict the loss of 'implosion energy' created, instead concentrating it within the vessel so that biosynthesis can take place. The vacuum meter monitors the 'biological vacuum' formed if biosynthesis succeeds.

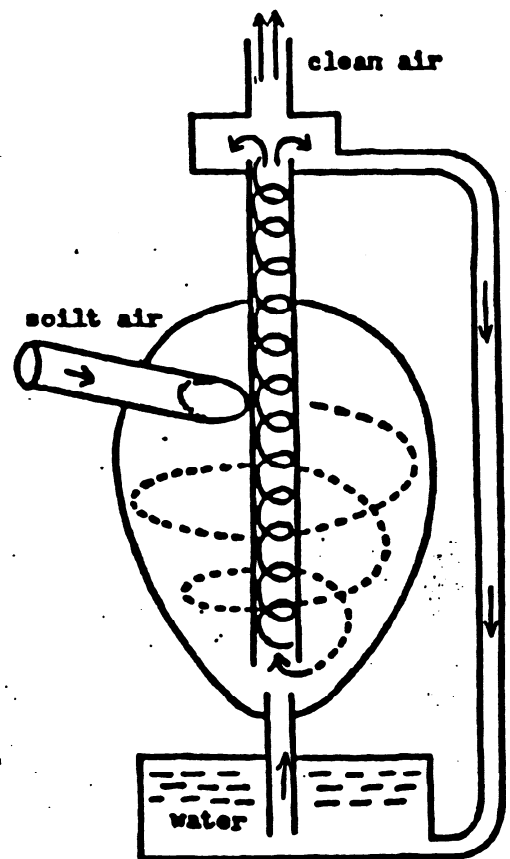
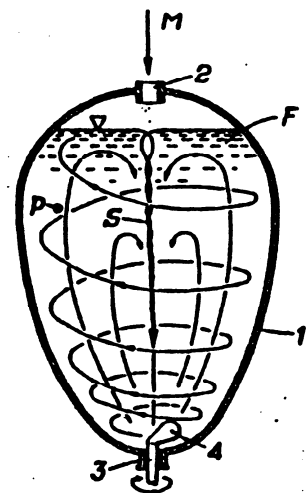


Figure XVIII

Figure XX





# VIKTOR SCHAUBERGER' BIOLOGICAL SUBMARINE

by Albert Zock

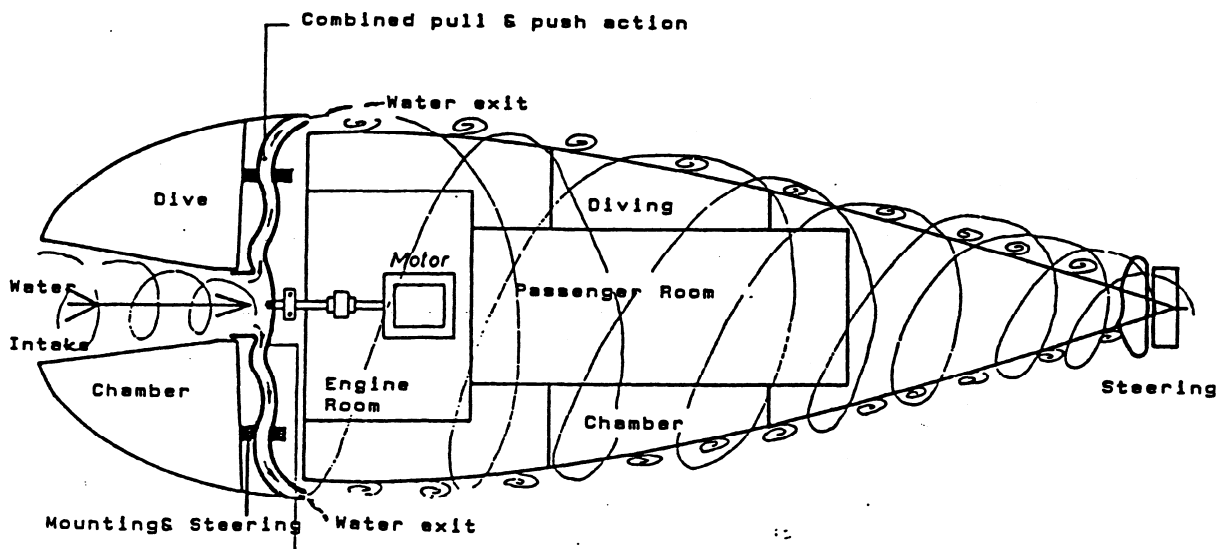
The biological submarine once had the attention of the German War Lords, but Viktor Schauberger made it look as though it were not very useful, as in his opinion, bio-technology is for supporting progress and not for destruction. This submarine idea was taken from the observation of fish, especially of trout, which can stand motionless in a flowing stream, just by taking water in and out. This process has two functions, first it creates a vacuum in front of the mouth into which the fish gets sucked, and at the same time provides food, as the water contains all that the fish needs. While the food goes into the digestive system, the water is forced through the fan-like structure of the gills, which not only absorb the oxygen needed, but also push the water backwards. This specially compressed water does not mingle right away with the rest, it glides along the conical body like a wedge and shoves it forward. In addition, on the scales it forms little whirls which enhance the push further.

However, Viktor Schauberger was not the sole observer of this phenomenon. Before him others not only formed the same idea but even constructed prototypes with some results. One inventor, A. Borner, came to the conclusion that the speedy motion of a fish is relative to the size of its gills. He constructed a boat with a precise opening in its bow, where a turbine sucked in water like a fish, and pushed it out through slit-like exit ports in such a way that it glided along the hull like a sheet, not only separating it from the friction of the

outside water, but also giving it an additional push forward. Further, he applied such skin depressions like sharks have on his ship's hull, presuming that they cause small swirls, and so increased the forward motion. Borner even incorporated the slippery skin layer that fishes have by applying oil to the hull to reduce friction. He hoped all this would bring a 60-80% reduction in fuel. Indeed, experiments with his boat FORELLE, meaning trout, achieved twice the speed, while still using the same amount of fuel.

Apparently, Borner did not know the spiral-vortex, which is an invention of Viktor Schauberger. If properly applied, it will not only increase speed, but also reduce fuel consumption to a minimum!

This drawing by Dipl. Ing. Walter Schauberger, Viktor's son, shows such a submarine. His bio-technical submarine has a movable bow, which gives the boat the flexibility fish have. The conical and rifled water-intake permits a variable step-up, creating a strong torque on the water, which, after entering the implosion turbine, will be intensified to such a pitch, that now its recoil (resonance) is driving it instead of the motor, as bio-technical applications always have a pull and push action. Such a turbine consists of tapered-down pipes with inside rifling which are bent into spirals. Such FREE ENERGY is not a question of time, rather the will to use it, as it already exists, giving us a chance to move on water, under it and in the air using only a fraction of the energy we use today!



Viktor Schaubberger's Brilliant Work with  
Natural Energy Explained

A photograph of a waterfall cascading over mossy rocks. Overlaid on the image is a geometric diagram consisting of a circle with a vertical line passing through its center. A horizontal line also passes through the center. Several lines radiate from the center to the circumference, creating a star-like pattern. Some of these lines are labeled with numbers: '1' at the top, '2' at the bottom, '3' on the left, and '4' on the right. There are also some smaller, less distinct markings and lines, possibly representing a more complex geometric or energetic structure.

# LIVING ENERGIES

Callum Coats

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# FOREWORD

It is very difficult to observe the extraordinary creativity and fruitfulness of Nature without a sense of wonder. But wonder is at odds with reason. It has been said that humanity's schism with Nature was contrived so that we could develop our sense of reason to the extent that we now experience. One of the outcomes of this, because they are preoccupied with physical form, is that our contemporary biological sciences seem to believe that this munificent fecundity of Nature 'just happens'. Viktor Schaubberger's vision was that this 'happening' is the result of a complex interaction of subtle energies, a process that is initiated and sustained from what he called the 4th and 5th dimensions of Being.

Viktor Schaubberger was a man who was undoubtedly inspired by more exalted levels of reality and meaning than most of us experience. His great gift was to be able to show how it is the finer and 'higher' energies that are responsible for creating form and structure, not the other way round as contemporary science would suggest. The story of his life is tragic at a personal level, for he was constantly ridiculed, because of the vested interests of science for whom he was a threat. He died a broken man when he saw that the gift he wanted to make was corrupted by the powerful for material gain. His prophetic vision was that humanity was bound for self-annihilation if steps were not immediately taken to change course. In a real sense we have had to see many of his specific prophecies come true before we were ready to take him seriously.

Schaubberger died in 1958. Why has it taken so long before a book could be pub-

lished that is so vital to the salvation of humanity? Part of the answer lies in history. When Austria was absorbed by Nazi Germany in 1938 there was a cultural melding. Viktor Schaubberger was an Austrian, as was Hitler, who saw that this remarkable inventor could be valuable to his cause. Although Viktor was coerced to work for the Third Reich, he has inevitably been associated with it. Postwar German consciousness, being anxious to distance itself from the Hitler period, could not then easily embrace Schaubberger's vision.

It took a Swedish engineer inspired by the vision of Rudolf Steiner to rescue Viktor Schaubberger from oblivion in 1976. Steiner and Schaubberger were contemporaries, and it is tempting to believe that they were both inspired by a similar source of profound wisdom of universal meaning. They had some lengthy discussions, and one wonders how much common ground they found!

This Swedish engineer's book was published by a small publisher better known for its music publishing. I heard of Olof Alexandersson's *Det Levande Vatten* in 1979 from some Swedish-speaking British friends. I do not read Swedish, and so could not make a 'rational' assessment of the book. But as sometimes happens in publishing, I had a 'hunch' this book was important, and that it must be translated into English and published widely.

My previous company, Turnstone Press, in 1982 published *Living Water* which is a popular introduction to Viktor Schaubberger, the man and his mission. This lovely little book has since gone through five reprints and

this caused a strong demand for an authoritative book on Viktor Schauberger's practical ideas for working with Nature, rather than against her, as we currently do. Clearly Schauberger's time has come, as millions of people all over the world realise that we are dangerously off-course.

It was when I was preparing *Living Water* for press that Callum Coats came into my life. Through his mother Callum met Viktor's physicist son, Walter Schauberger in 1977 and, sensing that his future work lay here, began an intensive study of Schauberger theory. In 1981 Callum helped edit the translation of *Living Water*, during which he confided with me his ambition to write a definitive work on Viktor Schauberger. This was to prove a much more ambitious task than he anticipated, and he has devoted all his resources and energy for over 15 years to this end. It is a remarkable body of research, and Callum undertook to replicate some of the experiments. A crucial part of the process was to spend three years with Walter's Pythagoras-Kepler-System Institute at Lauffen in the Salzkammergut near Salzburg. Walter has now passed on, but the Schauberger family has cooperated with Callum in helping this book be born, as with its companion work *Eco-technology*, Viktor Schauberger's own writings in three volumes, which Callum has compiled and translated. Some thoughts on how to approach this book. Callum and I talked about how to arrange the text of *Living Energies*. As the publisher, I did not want readers to be put off early in the book by a discussion of energy and motion. Callum, persuaded me that the more popular material - about water as the life-blood of the Earth, and how we need to cherish it, and about the magic of trees and the biomass of the Earth - can really only be appreciated with some understanding of what is energy. However, if you do find the discussion of energy and motion (for energy is motion) daunting, my suggestion is that you skip to a later chapter to get the sense of our lost inheritance. You can always return to put in the theory later. I suspect, in any case, that this is not a book that most will read

through in one swoop. Rather it is an inspired fountain of wisdom to be dipped into, here and there, for many a season. Another hint, I was finding the chapter on energy hard going until I read it on an Orkney beach. Surrounding yourself with nature makes the ideas come alive!

Schauberger, in common with other pioneers of radical thinking, realised that words carry associations. Therefore, in order to wean people away from a conventional word which is often inadequate for the task, it is sometimes appropriate to coin a new word, to allow their imaginations to grasp a more inclusive or specific concept or idea. This is especially relevant for the subtle energies which are responsible for the interaction of all creation and the incredible abundance and fecundity of Nature. We have tried to cross-reference these in the text, and there is a glossary in the back of the book.

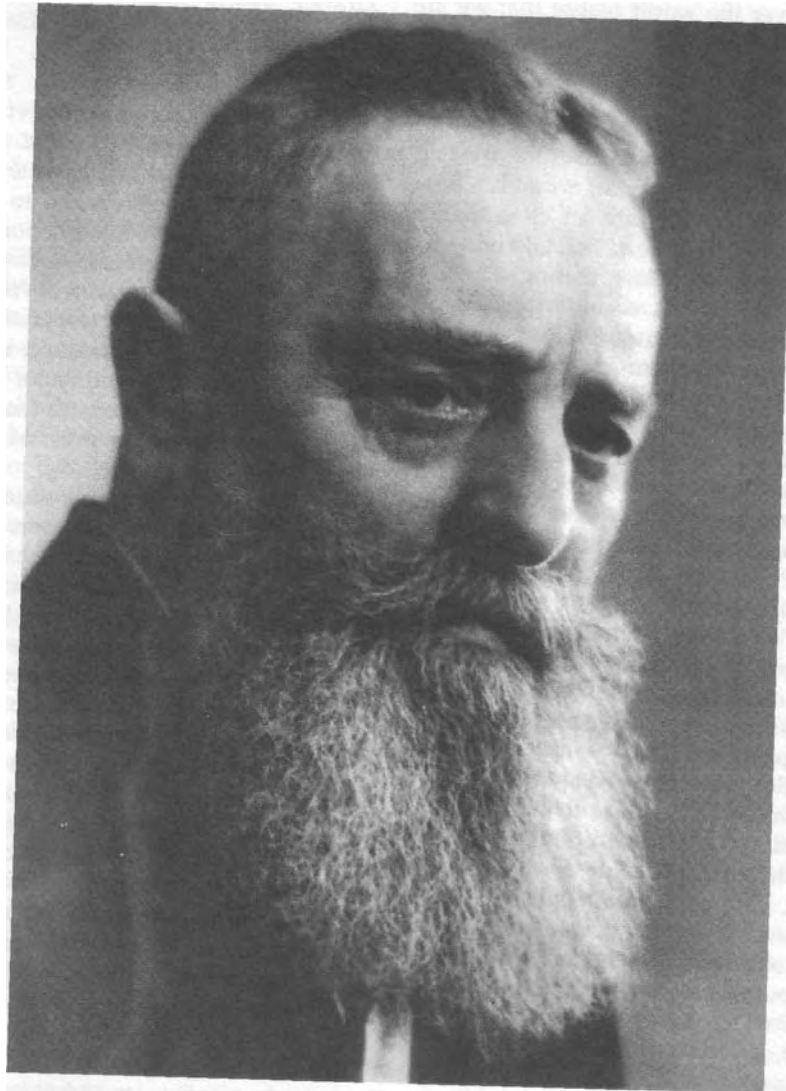
Viktor Schauberger, besides being an impeccable observer of Nature, was also an inventor who saw how the practical application of his ideas could transform our society. Just as other visionaries have heard the harmony of the Universe as 'The Music of the Spheres', so Viktor Schauberger saw the symmetry of all creation in terms of sacred geometry. Inevitably this requires a modicum of mathematics in the text. But to show that it is not necessary for an appreciation of Schauberger's ecological understanding, we have, where possible, extracted the more theoretical material into boxes. So, if you are daunted by mathematical symbols, don't be dismayed, for you will still find most of the text inspiring and enthralling.

*Living Energies* may become the catalyst for re-writing all the textbooks of science and the manuals of politics and planning. It shows how humanity can take its place as the responsible guardians of a very precious centre of life in the Universe. We see this as required reading for anyone planning to participate in the next century. It is a guide to the new millennium!

Alick

Bartholomew,

Wellow, September 1995.



## Viktor Schaubberger

Born: 30th June 1885  
Holzschlag 2,  
Pfarramt Ulrichsberg,  
Upper Austria.

Died: 25th September 1958  
Linz,  
Upper Austria.

# WHO WAS VIKTOR SCHAUBERGER?

## 1.1 Viktor Schauburger - The Man

Throughout recorded history humanity has been periodically uplifted by the contributions of a few gifted and enlightened individuals, whose teachings and philosophy have gradually raised the level of human awareness; the Buddha, Jesus Christ and the Prophet Mohammed being the most familiar examples of how a single individual can produce far-reaching changes in the consciousness of humanity. Lesser mortals have also played a vital role in this process and the seeding of human consciousness with higher truths always seems to come at a time when humankind as a whole is ready to receive them.

It is sometimes said that these great teachers, themselves ardent students of Nature and the Divine, lived ahead of their time. At first view this would appear to be true, but on further reflection it becomes apparent that they lived precisely when they should have, for otherwise they could not have provided the vision or the direction necessary for humanity's upward evolution and progress. In most instances a signpost is long forgotten and unheeded if it lies behind, and to be of any use it must of necessity stand out ahead in order to indicate the new way. Many such human signposts have punctuated the passage of humanity's progress, but have received recognition for their great contribution only long after their own passing.

These exceptional individuals are indeed visionaries in the truest sense of the word,

for they are endowed with a far higher sense of perception than their contemporaries. For their work an enormous dedication and courage is necessary. Historically, and Viktor Schauburger was no exception, the lives such individuals have led have been dogged with confrontation, difficulty, doubt and the great loneliness of the path-finder, or the individual who stands alone far out in front on evolution's upward way. As pioneers, apart from breaking new ground, they also suffer great adversity in their encounters with the powerful opposition of those whose interests and beliefs are rigidly immured in the current status quo.

Such great leading lights as Copernicus, Johannes Kepler and Galileo Galilei, come to mind who devoted their whole lives to the understanding of the universe and the raising of human consciousness. In the main they were only permitted a view into their Promised Land, a vista over the unfolding of their life's work, but almost without exception had to forgo the passage into the new and the reaping of the fruits of their travails. Denied any recognition for their contribution, their end was often clothed in misery and penury, as though the gods would exact from them the very last ounce of personal surrender. Many of these enlightened individuals died alone, unloved, unwanted and unsung.

Kepler was reduced to total insolvency and, although owed a considerable sum for his services by the Duke of Regensburg, he died a pauper and was buried in a common grave outside hallowed ground, for he, like



his contemporary Galileo, had dared to question the authority of the Church. To this day no-one knows where Kepler's body lies. He too had had a vision and, through his meticulous study of the movement of the planets, produced his great work, *Harmonices Mundi*, "The Harmonies of the World". Having finally completed it in 1618, he dedicated it to James I of England, declaring that now that he had discovered the harmonious qualities and proportions of all things, there would no longer be the need for human conflict. Kepler's opus had barely been published when the Thirty Years' War broke out, thoroughly obscuring and interring all his endeavours. This happened as a result of the so-called 'Defenestration of Prague' in which on May 21st, 1618 the envoys of the Austrian Kaiser were hurled from the windows of the Great Hall.

Mozart, who took music, its resonances and harmonies to new heights, also suffered a similar fate - oblivion at the age of 35 and burial in a common grave. Max Planck, the great physicist who brought an end to the purely materialistic world view of the late 19th century with his quantum theory in December 1900, was another who, bereft of adequate clothing, food or other means of support, died alone in extreme poverty and cold.

Viktor Schauberger's life followed a path similar to those of his illumined predecessors, for in his life too he was met with derision, slander and deceit in a long confrontation with the Establishment in its various forms. He was a man of enormous strength of purpose; he was warm and encouraging, particularly to young people in whom he took a great interest, for he saw in them the possibility for the restoration of a secure and bountiful future. But to those whose view of life he considered irretrievably perverted spiritually and intellectually, he was absolutely uncompromising, seeing them as obstacles on the path of human evolution and in the rehabilitation of the environment.

Naturally he made many enemies in the process, but on the other hand a certain balance was achieved by a very few en-

couraging and loyal friends such as Prof. Philipp Forchheimer, a hydrologist of world repute. Another was Prof. Werner Zimmermann, a Swiss, who published articles by Viktor in his ecologically oriented magazine *Tau* between 1935 and 1937. Werner Zimmermann frequently entered the lists in Viktor's defence against the narrow-minded, self-interested attacks of academia and entrenched bureaucracy, which on occasion were very intense. More often than not Viktor's discoveries totally contradicted established theory and in their flawless functioning and practical implementation seriously threatened the credibility and reputation of scientist and bureaucrat alike.

There are many more such individuals who have given themselves wholly to the betterment of their fellow human beings. Without exception they were endowed with extraordinary perceptive and intuitive abilities, which afforded them fresh insights into the way in which the world functioned, enabling them to understand phenomena hitherto inexplicable to their contemporaries. They were aware of another dimension of reality, that 'Dimension of Comprehension' which makes sense of the whole - just as the 3rd dimension makes a two-dimensional world understandable.

Some of these great teachers were born with this ability, while others fought long and hard external and personal battles to acquire it, their struggles fraught with hardship and ridden with disappointment. Often assailed by doubt, they nevertheless courageously persevered, urged ever onward to finish the task they had set themselves to complete. If ever there was a true exponent of the person described in Rudyard Kipling's poem *If*<sup>1</sup>, it was Viktor Schauberger.

He was one of those rare human beings, those explorers in human thought and endeavour, whose chosen path was to throw light on the future. It is therefore inevitable that he too will eventually take his place amongst the ranks of these exalted, self-sacrificing beings. In the years to come he will be acknowledged as one of the principal

guiding spirits of the 21st century and beyond, who brought about a fundamental shift of Copernican proportions in humankind's appreciation of Nature and natural energies.

There can be very few of his contemporaries whose comprehension of the sublime energetic interdependencies, upon which life at all its levels is founded, was so profound. Nor, apparently, has any other person had Viktor's deep understanding of that living substance so vital to all life processes - water, which he viewed as the blood of Mother-Earth, for like Sir James Lovelock, the originator of the Gaia hypothesis<sup>2</sup>, Viktor too saw the whole Earth as an organism and expressed this view in his early writings of the 1930s.

Viktor Schauburger was born on June 30th, 1885 in the parish of Ulrichsberg, in Upper Austria. He was descended from a long line of foresters, who had devoted their whole lives to the natural management and administration of the forest, a dedication mirrored in their family motto, 'Fidus in silvis silentibus' or 'Faith in the silent forests'. With this as his background and much against his father's will, but with the support of his mother, at the age of 18 he flatly refused to follow in the footsteps of his two elder brothers and attend university, having seen how it had affected his brothers' thinking. Apart from his earnest desire to become a forester, the main reason for his refusal was that he did not wish to have his natural way of thinking corrupted by people he considered totally alienated to Nature. He did not want to be forced to see things through other jaundiced eyes, but through his own. For, as he later wrote:

The only possible outcome of the purely categorizing compartment-mentality, thrust upon us at school, is the loss of our creativity. People are losing their individuality, their ability to see things as they really are and thereby their connection with Nature. They are fast approaching a state of equilibrium impossible in Nature, which must force them into a total economic collapse, for no stable system of equilibrium exists. Therefore the principles upon which our actions are founded

are invalid, because they operate within parameters that do not exist.

Our work is the embodiment of our will. The spiritual manifestation of this work is its effect. When such work is done properly, it brings happiness, but when carried out incorrectly, it assuredly brings misery.<sup>3</sup>

Taking his mother's advice and following his natural instincts, Viktor became a junior forest warden, spending the next few years often in areas of remote forest. There he was able to perceive movements of energy and natural phenomena in Nature's own laboratory, because in Austria in the early part of this century, circa 1900-1915, there were large tracts of forest still untouched by human hand. After the 1914-1918 war in which he was wounded, Viktor returned to forestry, eventually entering the employ of Prince Adolph zu Schaumburg-Lippe, the owner of a large hunting and forestry reserve in Steyring.

In these districts there had been no interference in the balance of Nature and Viktor was thus able to observe events that are today inconceivable, and which no longer take place because of the enormous deterioration of the environment. It was here that he acquired the insights into the natural movement of water that resulted in the building of his first log flume, which will be described in detail in chapter 12. Here too he first became aware of other levitational energies inherent in water, for one day in the middle of a very cold winter, as he was about to cross over a fast-flowing mountain stream, he flushed a stationary trout from its lair as he sought a firm hold for his staff on the stream bed. Its lightning flash upstream immediately caused a number of questions to race through his mind:

How did the trout actually manage to get to this spot - and later I saw dozens of them in the same stream - which was cut off by a 60 metre high waterfall about a kilometre downstream, where the water was atomised into a veil of mist?

How was it able to flee upstream like a streak of greased lightning in mockery of all the laws of gravity?

How was it possible for this fish to stand so motionlessly, only steering itself with slight movements of its tail-fins, in this wildly torrential flow, which made my staff shake so much that I could hardly hang onto it?

What forces enabled the trout to overcome its own body-weight so effortlessly and quickly and at the same time overcome the specific weight of the heavy water flowing against it?

Why didn't the water freeze even during periods of severe frost with temperatures below  $-30^{\circ}\text{C}$ ?<sup>4</sup>

While Viktor undoubtedly had an especial talent for observation, a penetrating power of perception undimmed by preconceptions, he also developed what might be called an active consciousness, an ability to go beyond the merely visual in search of what lay behind a given phenomenon. This taught him a great deal and how this ability gradually evolved, he explained as follows:

The Schaubergers' principal preoccupation was directed towards the conservation of the forest and wild game, and even in earliest youth my fondest desire was to understand Nature, and through such understanding to come closer to the truth; a truth that I was unable to discover either at school or in church.

In this quest I was thus drawn time and time again up into the forest. I could sit for hours on end and watch the water flowing by without ever becoming tired or bored. At the time I was still unaware that in water the greatest secret lay hidden. Nor did I know that water was the carrier of life or the ur-source<sup>5</sup> of what we call consciousness. Without any preconceptions, I simply let my gaze fall on the water as it flowed past. It was only years later that I came to realise that running water attracts our consciousnesses like a magnet and draws a small part of it along in its wake. It is a force that can act so powerfully that one temporarily loses one's consciousness and involuntarily falls asleep.

As time passed I began to play a game with water's secret powers; I surrendered my so-called free consciousness and allowed the water to take possession of it for a while. Little by little this game turned into a profoundly earnest endeavour, because I realised that one could detach one's

own consciousness from the body and attach it to that of the water.

When my own consciousness was eventually returned to me, then the water's most deeply concealed psyche often revealed the most extraordinary things to me. As a result of this investigation, a researcher was born who could dispatch his consciousness on a voyage of discovery, as it were. In this way I was able to experience things that had escaped other people's notice, because they were unaware that a human being is able to send forth his free consciousness into those places the eyes cannot see.

By practising this blindfolded vision, I eventually developed a bond with mysterious Nature, whose essential being I then slowly learnt to perceive and understand.<sup>6</sup>

It is very interesting to compare this with a statement taken from *The Urga Manuscript*<sup>7</sup>, which is the record of a letter by Do-Ring, a scholar and scribe to the Panchen Lama, written in the early 1920s to his friend, Wing On concerning the inner life and describing the functions and phases of spiritual evolution.

It [the 6th function] is the one in which the initiate is given the power of sending his intellect or conscious mind right away from his body, directing it to any part of the material earth he desires it to visit, and then recalling it still conscious of all that it has seen.<sup>8</sup>

Truly the intellect, or that part of life that sees and records its observations, can and does leave the body and travel great distances, observe detail at those distances and return, giving to the mind as a whole an accurate picture of where it has been and what it has seen. This function occurs at the immeasurable will and is preceded by a short, deep meditation.<sup>9</sup>

These perceptions of truth presented Viktor with considerable problems in translating them into everyday language, for when it comes to transferring spiritual imagery into mundane word-pictures - regrettably still the only means of human communication - enormous difficulties are encountered due to the limitation of language. While all languages are in a constant state of evolution or devolution, the words and terminology at

any given moment are a reflection of the current state of conceptual awareness. Thus for someone who is 'ahead' of his time, generally speaking the conceptual framework of language does not necessarily extend to the clear and unequivocal explanation of new concepts for which new acceptable words may have to be coined.

In many instances therefore, when he came to describe these phenomena, Viktor uses not the conventional terminology of physics, chemistry or biology, etc., but his own words. In this he was greatly assisted by the structure of the German language, which facilitates the formation of new concepts through additive nouns. Despite this and for lack of suitable technical vocabulary, their interpretation and comprehension is still sometimes extremely difficult, which in his writings he freely admitted, "Few will understand the meaning of the above! Some individuals, however, will obtain an indefinable inkling."<sup>10</sup>

In an attempt at clearer explanation he did eventually study these subjects on his own in order to acquaint himself with their respective terminologies. However, in his writings they are often used merely as indicators of the theme under discussion and therefore cannot always be taken literally.

Water, forests, natural energies and their generation were ever his passionate concern. In our present way of looking at things he would probably be considered one of the world's first 'greenies'; Dr. Richard St. Barbe Baker, founder of 'The Men of the Trees' in 1922, and Viktor's friend, being another.

Viktor had tremendous foresight and an enormous capacity for writing, reputedly having composed many, many thousands of pages. At times, apparently in a trance-like state, he wrote for hours on his typewriter with no idea of what he had written until finally reading it at the end. Amongst other things, he set down all that he saw would inevitably happen, if we did not mend our ways and change our whole approach to the environment, both technologically and conceptually. All the various crises that are today engulfing humanity, he foresaw as long ago as 1930. When questioned on the accuracy of his predictions, he answered

very simply, saying that, "For a person who lives 100 years in the future, the present is no surprise."<sup>11</sup>

In the late 1920s as a result of the successful operation of Viktor's Steyrling log-flume, Prof. Philipp Forchheimer was asked by the Austrian Government to investigate Viktor's unusual theories. Through their collaboration, Forchheimer gradually became aware of the truth of Viktor's ideas, eventually insisting that Viktor put all his discoveries down on paper, saying that he thought Viktor's theories were not only valid, but extremely valuable. Forchheimer later confided that he was delighted to have retired, because he would now be relieved of the humiliating task of telling his students that he had been teaching them rubbish for the previous forty-five years.

With the cooperation of Prof. Wilhelm Exner, President of the Austrian Academy of Science and inventor of the Exner electro-scope, a treatise of Viktor Schaubberger's entitled "Turbulence", which described the braking function of vortices and their relation to water temperature, was placed under seal and on deposit at the Austrian Academy of Science on January 1st, 1930. This was done, not only to ensure the precedence of Viktor Schaubberger's theories on water movement, but also to safeguard them for some time in the future. While stressing its value, Forchheimer considered there to be no point in publishing it at the time, because the hydrological world was not ready. The science of hydraulics would first have to change its values and way of thinking before these trail-breaking concepts could be taken seriously. It wasn't until 1974 that this document was released to Viktor's son, Walter Schaubberger.

Forchheimer did change his views later, however, and saw to it that Viktor's pioneering theories on temperature and its effect on the movement of water were published in 1930-31 in a series of articles in *Die Wasserwirtschaft*, the Austrian Journal of Hydrology. This showed Forchheimer to be all that a true scientist should be, and rarely is. It demonstrated the honesty and humility of a sincere academic who was prepared to

accept that his former ideas had been wrong and that current thinking could be changed; that there was another way of looking at things.

Viktor's aim was always to try to perceive the dynamic reality behind what he saw as physical illusion. He claimed, and rightly so, that by and large we human beings are extremely superficial, looking for and only seeing direct relations between cause and effect, whereas Nature always moves indirectly. But worse than this, in our ignorance of the unseen dynamic behind the seen manifestation, we mistake the effect for the cause, greatly compounding this error by failing to see that an effect becomes the cause for a further effect in an endless chain of causes and effects. In this regard Viktor comments:

Our thinking is inconsistent with what we actually see. The eye is a perfect, natural organ. The seen image is a reaction phenomenon. Using an artificial optical apparatus the same effect, for example, can only be obtained by a roundabout way, by means of a negative. The eye, on the other hand, immediately presents us with the diaposition, namely the true image.

Our sight constitutes an unconscious, automatic transformation process, whereby the negative image - like a photographic negative - i.e. the effect, is transformed into a positive one, like a diaposition colour slide. Our thinking, however, is really a purely individual, conscious process and therefore learnable. If our thinking is to attain the same perfection as our seeing, then we must change our way of thinking and learn to see reality, not as an action, but as a reaction. Perfect thought lies in the apprehension of the correct reaction, for before the eye can show us the positive, it must first transform the negative and in a certain manner must break up what it records. What we see, therefore, is the turning inside out of what we receive. What our mind grasps in this way must be re-formed and re-thought if we wish to attain that for which we strive.<sup>2</sup>

Our direct mental approach towards the understanding and investigation of natural phenomena; our present materialistic and scientifically ingrained view that only the physically palpable and measurable represents the true reality, has lead to greater and

greater confusion and the necessity to elaborate more and more complex theories to explain the various functions of the physical world. Our great omission has been our total disregard and our failure to come to grips in depth with the more ephemeral, unseen, yet fundamental energetic causalities. Like the negative mentioned in the quotation above, these energies manifest themselves only indirectly, the physical constructs of the outer physical world being a positive reflection of their respective functions. What we perceive as the foundation of physical reality - a reality to which we have ascribed laws - is therefore only half of the truth, for in their dynamic these formative magnitudes conform to a sublime inner law of energetic reciprocities which will be discussed more fully in chapters 3 and 4, and about whose mutual interaction Viktor commented:

Nature is not served by rigid laws, but by rhythmical, reciprocal processes. Nature uses none of the preconditions of the chemist or the physicist for the purposes of evolution. Nature excludes all fire on principle for purposes of growth; therefore all contemporary machines are unnatural and constructed according to false premises. Nature avails herself of the biodynamic form of motion through which the biological prerequisite for the emergence of life is provided. Its purpose is to 'ur-procreate higher' conditions of matter out of the originally inferior raw materials, which afford the evolutionally older, or the numerically greater rising generation, the possibility of a constant capacity to evolve, for without any growing and increasing reserves of energy there would be no evolution or development. This results first and foremost in the collapse of the so-called Law of the Conservation of Energy, and in further consequence the Law of Gravity, and all other dogmatics lose any rational or practical basis.<sup>13</sup>

In Viktor's view Western science and education generally left much to be desired. Our civilisation suffered from a myopic compartmentalisation of the mind, which prevented a detached overview, a synthesis of what was observed:

Today's science thinks too primitively; indeed it could be said that its thinking is an octave too

low. It has still not ventured far enough into the realm of energy, and its attitude has remained purely materialistic. For this reason it is principally to blame for the state of affairs we are experiencing today. In all probability, this development was necessary, for how else should a misguided humanity perceive the true interdependencies?<sup>14</sup>

Without doubt, therefore, there is a definite intention to teach young people upside-down methods of working with which they have to mis-earn their daily bread. That is to say, instead of moving forwards, they go backwards all the more rapidly in step with the improvements in the contrary methods of motion. For only thus can today's teaching principles flourish.<sup>15</sup>

In contrast to contemporary science, Viktor saw will and spirit as the principal causative forces of physical existence. They deploy themselves through the agency of various lower orders and magnitudes of energy belonging to the 4th and 5th dimensions, i.e. through those more subtle, non-spacial dimensions of being that are inherent, but are not perceived in the three dimensional world to which we are accustomed. Of ethereal nature and endowed with very high frequencies and formative potencies, they could also be termed 'potentialities', which in their extremely sensitive and unstable state of energetic equilibrium await the right stimulus and occasion to manifest themselves. In being able to speak of these higher and therefore more powerfully and profoundly structuring dimensions of reality, Viktor's own comprehension of them must have been at the level of the 6th dimension, a level where the encapsulation and understanding of a given concept or phenomenon is both simultaneous and total. Perhaps this might be termed the dimension of 'throughth' or pure truth, a crystal-clear transparency, a complete comprehension of the wholeness devoid of all uncertainty and unclarity.

From 1930-1933 Viktor Schaubberger worked with systems for water regeneration and the production of high-quality drinking water for which patents were applied in 1934 (see fig. 15.2). This rather

cumbersome prototype was later followed by an egg-shaped device which was much smaller and far more efficient. When tested to its extreme power, however, it developed such powerful internal suction that even mercury seals (of extremely densely packed molecular structure) were unable to withstand the enormous suction generated and leaked into the water undergoing treatment. Despite the fact that this leakage occurred only when extremely high vacuum effects were present, which were absent under normal conditions of operation, the Government argued through its consultant Professor Diering that the public could not be exposed to the hazard of mercury poisoning. Laying heavy emphasis on this, all further use of the machine for the regeneration and production of spring-quality water and super-distilled water was forbidden. Indeed Viktor Schaubberger's machine had evidently offended somebody in high places, for it was confiscated and destroyed by the Austrian police.

Always a thorn in the side of scientific and government institutions, Viktor's long battle to save both the Rhine and the Danube from total ruin was ultimately lost through their rejection of his practical suggestions. In early 1932 he wrote a paper about the rehabilitation of the Danube detailing the measures that needed to be taken in order to reinstate it as the magnificent river it had been in days of yore. This paper was included as a separate chapter in "The Danube", a study undertaken by the International Danube Commission and consisting of submissions from the Danube's various contiguous countries.

When officialdom discovered with horror that Viktor's contribution had been incorporated into this major work, the whole edition was recalled, destroyed and republished in October 1932 omitting the offending article, disregarding the publishing costs of the original edition which amounted to over 100,000 schillings - a very large sum at the time. All this happened largely due to the actions of Viktor Schaubberger's implacable antagonist Dr. Ehrenberger, who hounded him wherever he went. This eventually provoked a sharp

response from Viktor Schaubberger largely in the form of a letter containing twenty-nine questions of which the following are representative:

Are you aware that, before a large assembly of university professors in the lecture rooms of the Technical University for Agricultural Science, Prof. Dr. Forchheimer was able to demonstrate on the blackboard that water temperature plays not only an important, but actually the principal role in the movement of water?

Are you aware that Prof. Dr. Forscheimer urged me to publish these observations in the *Wasserwirtschaft* and that the Professor himself saw to it that my articles were accepted for publication?

Are you aware that the river engineering departments of Vienna, Linz, Pragarten and Bregenz, the Chairs for Hydraulic Engineering in Danzig and other places demanded the immediate withdrawal of these articles otherwise they would officially cancel their subscriptions to this scientific journal?

Are you aware that over 100 academics jointly resolved not to permit my presence in government service and to enforce my dismissal?

Are you aware that with the encouragement of Assistant Secretary, Engineer Kober I stated my preparedness to explain the principles of my system of river regulation publicly at the Technical University for Agricultural Science?

Are you aware that this lecture was cancelled at the last minute by the Rector, Dr. Olbrich?

Are you aware this professor publicly declared before witnesses, that this event was the darkest episode of his whole period as rector?

Are you aware the Federal Austrian Forestry Department had to pay A. Sch. 5,000 per 1,000 logs after I was able to prove that I could transport this timber over a distance of 30km in a wild, unruly watercourse simply with the aid of temperatures and that the competent authorities were unable to raft one log even 50 metres?

Are you aware that your articles created great difficulties for me in the German Patent Office, because there I was apparently held to be a liar and a swindler?

Are you aware that I have entered into negotiations with the widest variety of Foreign Ministers and that on each occasion the negotia-

tions were always broken off at the last minute due to the receipt of untrue information?

Are you aware that I was invited by His Majesty the King of Bulgaria and that there too similar slanderous material was sent from Vienna?

Are you aware that Mr. Werner Zimmermann has also been warned repeatedly never to have anything more to do with me?<sup>16</sup>

Whatever might have been thought of Viktor Schaubberger in Austria, word of his abilities and the statements contained in his then recent book, *Our Senseless Toil - the Source of the World Crisis*<sup>17</sup>, evidently reached others ears including those of Adolf Hitler. At a time when the relations between Austria and Germany were at an all-time low, Viktor Schaubberger was summoned to an audience with the Reichschancellor in Berlin. Special papers were arranged and all the documentation carried out within one day. Suddenly Viktor Schaubberger left for Berlin and a meeting with Hitler, who greeted him warmly as a fellow countryman, telling him that he had studied all the reports about Viktor's work thoroughly and was very impressed with what he had learned.

Thirty minutes had been allocated for the discussions, which Prof. Max Planck had been requested to attend as scientific adviser shortly before he was rudely deposed from his position as Privy Councillor. This exchange of views eventually lasted 1 1/2 hours, during which Schaubberger explained the destructive action of contemporary technology and its inevitable consequences. He contrasted this with all the processes of natural motion and temperature, of the vital relation between trees, water and soil productivity, indeed all the things he considered had to be thoroughly understood and practised in order to create a sustainable and viable society.

When Viktor had finished his explanations, Max Planck, who had remained silent, was asked his opinion about Viktor's natural theories. His response was the remarkable and revealing statement that "Science has nothing to do with Nature".<sup>18</sup> Pausing for a moment to take in this astonishing admis-

sion, Viktor then referred to the proposed four-year plan, the so-called Goering Plan, stating that not only was the time frame was far too short, but if instituted it would gradually undermine and ultimately destroy Germany's biological foundations. As a result, the Third Reich would last only ten instead of the boasted 1,000 years. (Viktor was not far out in his estimate!)

During the earlier part of the discussion, Hitler had been enthusiastic, but he became greatly perturbed at what he had just heard and ordered his technical and economic advisers, Messrs. Keppler and Wiluhn, to discuss with Schauberger what could be done. Once outside the door these two men demanded to know how Viktor had got in there in the first place. Angered at their truculently condescending air, he replied "Through the same door I've just come out of!" Seeing that his ideas had no hope of acceptance, and leaving them gaping, he returned to his hotel and left for Austria the following morning. Keppler and Wiluhn, however, were to get their revenge later after the Anschluss on March 13th, 1938.

In Vienna later that year, at one moment while taking tea with Mrs Mada Primavesi, a well-known figure in the upper echelons of society, Viktor excused himself saying that he would be away for about twenty minutes for a routine medical examination of his First World War wounds at the nearby Vienna University clinic, to assess his eligibility for a continuing war pension. When he did not return, and furious at being so rudely deserted, Mrs Primavesi set out to find him. Fuming, she went to where he lived, and being told by his wife that he had not returned and that it was quite unlike him to behave in such a way, she then went to the clinic. Collaring the director, Professor Polzl, whom she knew well, she refused to leave until Viktor had been found and eventually found where he was - in the section reserved for lunatics. He was lying quietly on a bed trussed in a straitjacket waiting for the lethal injection, which was then the standard procedure in the Third Reich for the removal of the mentally insane and other 'undesirables'. Viktor's guardian angels must have been

very alert, for despite his status as persona non grata in the Third Reich, he somehow always managed to survive.

Despite the new order after the Anschluss and the Sword of Damocles now hanging over his head, by now hardened to setbacks and with indomitable courage and a mind never still for a moment, Viktor quietly continued his research. His main drive was to investigate phenomena and correlations that interested him. Once he had discovered that something worked, he noted the fact, and then got on with the next project. He was never very interested in commercialising his discoveries.

As ever he pursued ways of generating energy with water through the interaction of complementary, but opposite, forms of energy, i.e. heat and cold, electricity and magnetism, and centrifugence and centripetence, both aspects of which combine to create a unity, a wholeness through their synthesising, reciprocal interaction. Viktor also saw that suction and pressure could be used in similar fashion on the same axis to produce a powerful propulsive effect. In 1936 he successfully applied for patents for an air-turbine, which made use of a centripetal 'compressor' and rifled central exhaust pipe (Austrian patent no. 145141). This was followed by further patent applications in which this concept was improved. Although all trace of them has since been lost, the device described in these later patents was not only able to convert sea water into fresh water, but could also be exploited to power aircraft and submarines. Yet once again Viktor was the victim of deceit and his ideas were usurped. In documents dated 1941, he describes how Professor Ernst Heinkel, the designer of the first successful jet-plane (first flight 27 Aug.



Fig. 1.1 First Jet Aircraft (Heinkel)



1939 - fig. 1.1), had illegally obtained sight of Viktor's preliminary applications at the Patent Office in Berlin through his patent attorneys, Lehmann-Harlens. Having studied them carefully, Heinkel then expressed his disinterest in them, but immediately inaugurated a covert research programme using this information in modified form to improve the performance of his 1,000 kph fighter, most probably the He 280. This was an indictable infringement of Viktor's still confidential application. Wishing to avoid discovery and in order to continue to make use of the unlawfully obtained data, Heinkel fraudulently attempted to have Viktor's patent restricted to the conversion of sea water into fresh water only, by having its application to aircraft and submarine propulsion disallowed. Continuing his undercover experiments all the while, but without success due to lack of proper understanding, Heinkel, with a certain absence of ethical principle, then sought Viktor's collaboration in the project. Although some initial discussion eventually took place, Viktor did not cooperate, having become aware of the facts of the matter, and further contact between the two men ceased. Using his ill-gotten gains and keeping all the kudos for himself, however, Heinkel persevered with his research, which, as a direct result of the application of Viktor's theories, finally culminated in a much improved turbine. In the light of this Viktor Schauberg, in company with others, such as Sir Frank Whittle, inventor of the English jet engine, could also be viewed as an early contributor to the present jet-age. Indeed, in terms of aircraft design, he even went as far as to state that in order to develop and build fast-flying, supersonic aircraft successfully, the bodily forms of deep-sea fish should be copied. Today's 'stealth bombers' very much emulate these forms (fig. 1.2).

In 1939 Viktor's personal research virtually came to an end, all the materials he needed being appropriated for war production. In 1941, however, he was summoned by Air Marshal Ernst Udet to discuss the growing crisis of energy production and means of solving it. Premises were subse-

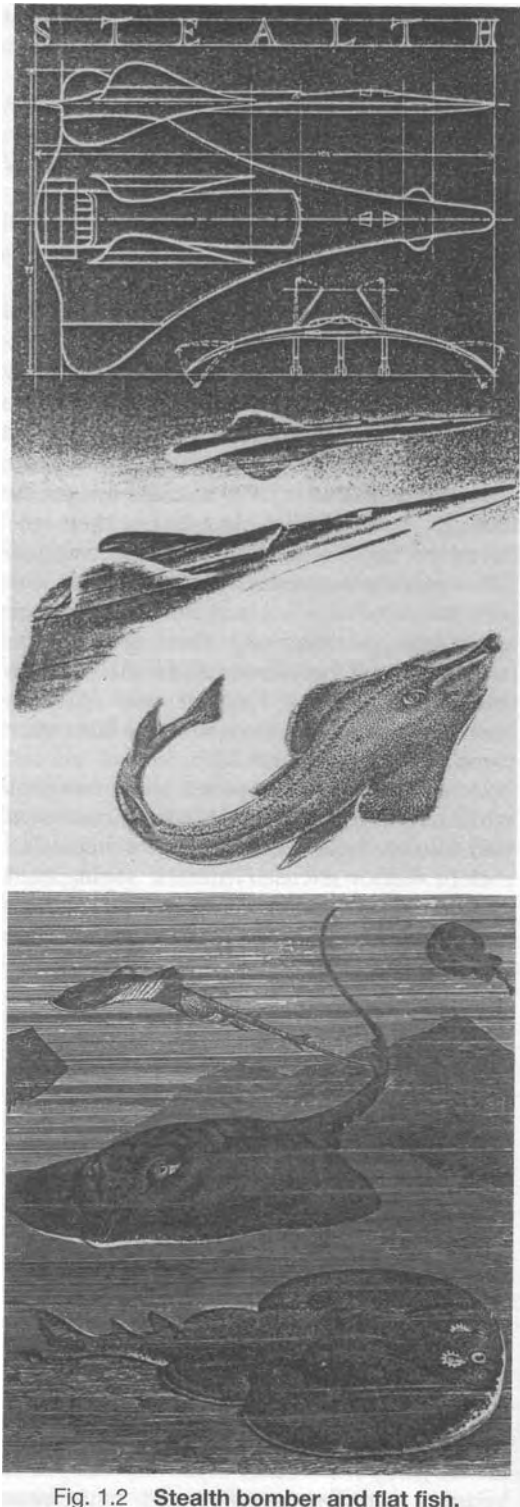


Fig. 1.2 Stealth bomber and flat fish.

quently set up near Augsburg for research and development, all of which came to nothing partly due to the death of Udet and partly because it was bombed by the Allies in 1942.

In 1943, despite his incapacitating war wounds and 58 years of age, Viktor was declared fit for active duty and was inducted into the Waffen-SS, very much under duress. He came under the control of Heinrich Himmler, who forced him into research to develop a new secret weapon. Provided with suitable accommodation at Schloss Schonbrunn, the nearby Mauthausen Concentration Camp to supply the workforce of prisoner engineers, Viktor was threatened with his life if he did not comply with orders and carry out this research.

In spite of these threats, however, Viktor put his foot down and demanded from the SS Command the absolute right to select the various engineers he needed. He further demanded that any technicians he chose were to be removed entirely from the camp, fed properly, dressed in normal civilian clothes and billeted in civilian accommodation, otherwise they would be unproductive. As he explained, people who live in fear of their lives and under great emotional stress could work neither consistently nor creatively. Surprisingly the SS agreed and so Viktor selected somewhere between twenty and thirty engineers, craftsmen and tradesman from Mauthausen, to be accommodated in various houses near the plant.

When they were all assembled, Viktor exhorted them to work as hard as they could, but under no circumstances were they to attempt to escape, otherwise his own life would be forfeit. They set to work with a will and, while not understanding what Viktor was trying to achieve, they nevertheless carried out his instructions faithfully. Two machines were eventually built, one called a 'Repulsator' and the other a 'Repulsine', reflecting the forces of recoil active in them. Both machines operated with the densifying forces of implosion, which are far more powerful than those of explosion.

Although these will be examined in more detail in chapter 21, accurate information about them is difficult to obtain, because after the end of the War all top secret information was confiscated and sequestered by the Allies - the Russians, French, English and Americans - and is therefore no longer available to the general public. Nor is there any trace of Viktor's wartime patents, for which according to his usual custom he is certain to have applied.

From a certain point of view, Viktor Schauberger could have been considered lucky at the end of the war, because together with his team of engineers, he had been moved by the SS to Leonstein in Upper Austria due to the bombing of Vienna and therefore in May 1945 came under the jurisdiction of the American forces of occupation. In Leonstein Viktor was placed in protective custody for nine months by the Americans and quartered inside a doubly-fenced and guarded perimeter. This was done partly to glean information about his involuntary, though to him useful, wartime research into 'higher' atomic energies at Mauthausen and Leonstein and partly to prevent his abduction by the Russians. Confirmation of this can be found in a letter Viktor wrote to the German Minister of Defence, Franz Josef Strauss, on the 28th of February 1956. Here he relates how the last device upon which he had been working had been seized only a few days after its successful flight by American intelligence investigators, who appeared to be very well informed about it. Its most important component on the other hand, which was forgotten in the haste to move to Leonstein, had been removed by the Russians from his Vienna apartment and the apartment subsequently blown up. Once Viktor had been thoroughly 'de-briefed', he was apparently threatened with further internment should he be foolish enough to continue his research in this field. Apart from time spent on interrogation during this period of confinement, however, for Viktor - now almost entirely penniless - this was a time of reflection and reassessment of his future.

During this immediately postwar period food was still extremely scarce and many people were suffering from malnutrition. When he was ultimately released, eventually moving to Salzburg in late 1946, he then set about applying his wide knowledge to agriculture and the systems of cultivation then in use. In collaboration with Franz Rosenberger (and as discussed later in chapter 19), he was able to demonstrate that significant increases in productivity could be achieved using the knowledge he had acquired in Bulgaria before the war. All progress in this area subsequently being blocked by corrupt politicians in 1949, Viktor then returned to his study of implosion, energy generation and water movement, trying with his limited funds to pick up the threads of his earlier research, culminating in a scientific investigation and vindication of his theories on the natural flow of water at Stuttgart Technical University in 1952 under the direction of Prof. Franz

Popel, which will be addressed in more detail in chapter 14.

With enquiring mind and tenacity of purpose, Viktor continued to work on his various devices. Aloys Kokaly, the publisher of *Implosion*, a magazine devoted to Viktor Schaubberger's theories, and a former corporal in the Waffen-SS who had managed by devious means to procure materials for Viktor's research at Schloss Schonbrunn, asked him why he was still working so hard, to which Viktor replied:

I must furnish those who would protect or save life, with an energy source, which produces energy so cheaply that nuclear fission will not only be uneconomical, but ridiculous. This is the task I have set myself in what little life I have left.<sup>19</sup>

The product of this last personal effort is the home-power generator shown in figs. 1.3 a&b, which due to Viktor's very limited pensioner's funds and its resulting crude, unso-

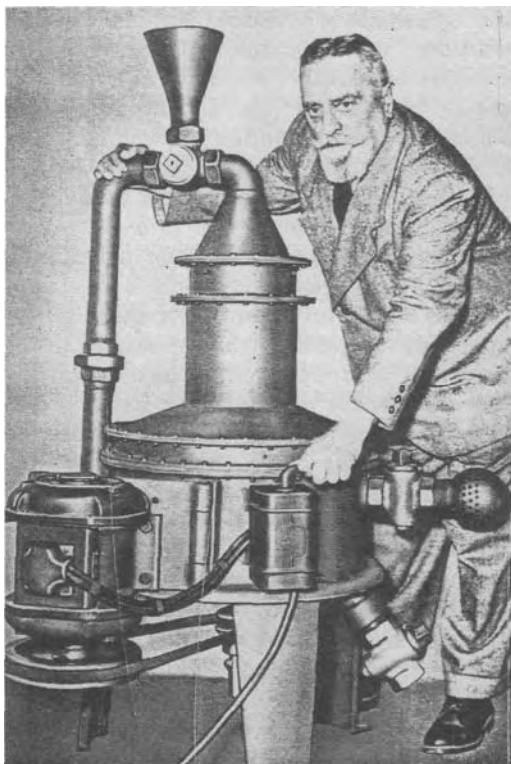


Fig. 1.3a The Home Power Generator.

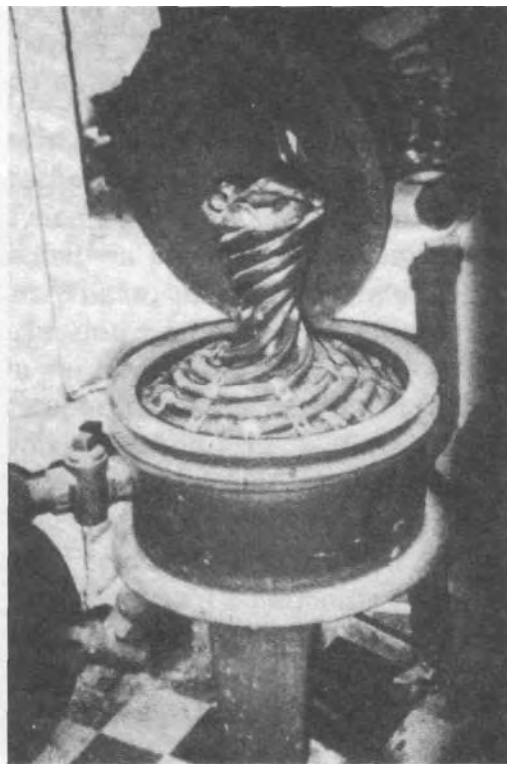


Fig. 1.3b

phisticated construction, did not function as well as he had hoped, for as it transpired, this machine was an unfortunate compromise between the geometry of mechanics and that of organics. It was a miserable culmination to the life's work of this quite remarkable man.

Being the enlightened individual he was, Viktor Schaubberger had a remarkable standard of personal integrity, honesty and responsibility. His word in any undertaking was always his bond, even if he was ultimately the loser. He would brook no deceit or underhand activity in any of those with whom he worked either as employers or employees. This often created enormous difficulties for him and he suffered considerable personal losses as a result. He was not a businessman, nor had he any interest in the commercial exploitation of his inventions for personal gain.

His overriding desire was to provide present and future generations with the ability in terms of knowledge and machines with which to usher in and sustain a golden age of prosperity, peace and harmony. His chief problem was always to find honest and unselfish people to help in the development and production of the various apparatuses needed to bring this about. In many instances his trust was sadly misplaced, as illustrated in extracts from a letter of the 4th February 1958 to a friend, a certain Mr. 'R', about 7 1/2 months before Viktor died.

I was always challenged to provide proof. Whenever I did this, I was robbed to such an extent that no other course was open to me, other than to remain silent once more. In the February issue of *Weltgewissen* you will be able to read that these apparatuses which the Austrian State Police took from me, are now being manufactured in Germany with enormous success. This has happened to me twelve times. Every time I had something produced, all I was given were the leftovers, while the best part was retained and exploited commercially by others. Or the apparatus was never made public, although I had paid all the agreed development costs myself. Subsequently large sums were demanded of me,

which lay far beyond my capacity to pay, and the machines I was struggling to build were withheld as security against payment.

I then began to work covertly and in this way succeeded in producing workable machines. I then first became aware of what I had discovered, namely higher-grade atomic energies. At this stage 'Demonstrate it!', 'Prove it!', 'Let it be examined!' was and is always demanded. If I concur, then all is lost. If I do not, however, then I am a fraud.

Then along came a major German industrialist with his scientific advisors. He investigated the process and found it in order. Statements were made expressing readiness to proceed with fabrication and cost evaluation and then, yes, then one will just have to wait and see. All they are, are empty promises, never kept.

Now representatives of the U.S. government have announced themselves. They too want to see and evaluate everything first, and then, only then will it be considered what might be done.

I requested a provisional agreement, which would only come into force once I proved that I could achieve significantly increased output. This was rejected. First see, then negotiate and the outcome was always the same.

Professors also want first to see, evaluate and then, aye, and then take over.

My dear Mr. R, I have now reached the point where they can all kiss the place where my spinal column terminates. I am old and seriously ill. My only concern now is for all the poor children who are faced with a grisly future.

If I reveal everything it will only be hushed up, because it not only involves the whole scientific establishment, but also the doctrines of the Church. All power politics will collapse once the truth emerges that science is the actual causative agent of cancer.

I intend to return to the forest once more, there to die in peace. The whole of science and all its hangers-on are nothing but a band of thieves, who are suspended like marionettes and must dance to whatever tune their well-camouflaged slave-masters deem necessary?<sup>20</sup>

This letter, most probably written to Alois Renner in the light of what follows, heralded the final disastrous chapter of Viktor Schaubberger's life, a chapter that started

## Questions for Science

### ENERGY

- What is it that keeps the Earth floating in space?
- Why does a top stand upright when it is spun from the side?
- What is temperature? What is heat? What is cold?
- What is energy?
- What is evaporation?
- What is vaporisation?
- What is dissolution?
- What is combination?
- What is absorption?
- On what effects are these processes founded?

### MAGNETISM

- Why do the magnetic lines of force run from south to north?
- Why does the Earth rotate from west to east?

### THE SUN

- What serves the sun as a carrier of light and heat, if, in the view of our learned scientists, space is a vacuum?
- Why do gases condense with a decrease in temperature?
- Why don't the fiery gases of the Sun, with supposed temperatures of over 6000°C, stream out into space?
- Why is the light and heat in the tropics more diffuse and at the poles the Sun's light more intense and its radiant heat less?

### ATMOSPHERE

- Why doesn't the Earth's warm air rise?
- Why is it so cold at the top of a mountain, i.e. nearer the Sun?
- Why in our houses is it warmer nearer the ceiling and colder at the floor, when an artificial source of heat is used?
- Why does marble expand with heat and why doesn't it contract again with cold?

### EVAPORATION

- Why is the desert so dead despite all the heat?
- Why do damp tiled roofs dry out from the eaves towards the ridge?

### WATER

- Why does the groundwater in walls rise far above the surface of the ground?
- Why don't wooden posts rot under water, but above it always?
- Why can rising cold water pierce through the hardest rock?
- Why does water pulsate and breathe?
- Why does groundwater manage to remain on the sides of mountains?
- Why, growing colder and heavier, does it rise upwards?
- Why does it frequently spring from high peaks?

### RIVERS

- Why do west-to-east flowing watercourses fertilise their banks?
- Why are the banks of east-to-west flowing rivers so barren?
- Why are the banks of south-to-north flowing watercourses fertile on one side only?
- Why do rivers flowing into cold seas migrate laterally to the north?
- Why do deltas and estuaries develop?
- Why does a trout stand still in a raging torrent, as if by magic?

### THE SEA

- Why is the water at the poles warmer at the bottom?
- Why is the sunlit surface at the poles so icily cold?
- Why doesn't the warmer, lighter bottom-water of the sea rise upwards?
- Why are the water temperatures at the equator so warm?
- Why is it that it gets colder with increasing depth?
- Why does it get warmer again below the boundary layer of +4°C?
- Why does life below this boundary layer begin anew?
- Why does the salt content of the seas vary?
- Why do herrings migrate northwards in winter?
- Why do deep-sea fish glow?
- Why can the warm Gulf Stream push the cold seawater aside and wend its way for thousands of kilometres over mountains and valleys in a reversed temperature gradient without the assistance of a mechanical gradient?

### BLOOD

- Why do cold-blooded animals carry fever-inducing poison?
- Why does a cold fever occur in the tropics?
- Why does a warm fever arise from a chill?
- What is fever anyway?
- Why is our body temperature subnormal when climbing a mountain and above normal as we descend?
- Why does the heart beat in our breast?
- Who gives this muscle its impulse to move?
- Where is the motor for this pump?
- Why does blood circulate in our blood vessels?
- Why do the fluids in a chicken's egg circulate without a heart?
- Why do we breathe day and night, when asleep and even when totally unconscious?
- Does the heart beat because we breathe, or do we breathe because the heart beats?

### TREES

- Why have light-demanding timbers a thick bark and shade-demanders only a thin one?
  - Where is the heart of a plant?
- [from Our Senseless Toil]

with much hope for the final realisation of all that he had striven for in his life. Having had no appreciation or support from the government or anyone else in Austria, when he was eventually approached by the Americans, who expressed an enthusiastic interest in developing his theories on implosion, Viktor thought that at last something positive would happen as America was such a powerful country with tremendous entrepreneurial energy. He was by this time quite exasperated at the behaviour of Europeans and what he had suffered at their hands, and in a conversation with Aloys Kokaly, Viktor somewhat embittered declared:

"AN American aircraft consortium offered me 3.5 million dollars, a similar offer was made by Canadian interests."<sup>21</sup>

"You didn't want it in Europe, so now you'll have to get it back from America expensively!"<sup>22</sup>

This all came to pass, but as we shall see, nothing ever came back to Europe, nor to the rest of the world for that matter, which has been the greatest loss and misfortune for humanity at large. But before proceeding to this final tragic episode and to obtain some insight into the scope of Viktor's thinking, let us examine and present it by directly quoting a passage taken from his book *Our Senseless Toil* (see p. 14). Here he poses a number of questions relating to phenomena that apparently had not been satisfactorily investigated at the time. Since its publication in 1933, many of these may well have been answered, but not perhaps in the way that he would have himself, because of his different view of life processes. While presented here under their original heading, they are not in the same sequence as first written, but have been arranged according to subject and more or less in the order in which some of them will be discussed in this book.

## 1.2 What Happened in America

Before embarking on this last and lamentable chapter in Viktor Schauburger's life, I would like to state at the outset that signifi-

cant and verifiable detail about it is extremely difficult to ascertain, mainly because all those involved, with the exception of Karl Gerchsheimer with whom I spent two days, have passed away in the interim. In whatever information is available concerning this tragedy, there is a profusion of conflicting statements, interpretations and timetables which, 37 years after the event, makes the unravelling of what precisely took place in this, for all concerned, abortive endeavour rather problematic. That nothing eventually came of this unfortunate affair in my view is due largely to cumulative misunderstandings, misapprehensions and inadequate clarification on both sides, which finally culminated in a complete breakdown, not only in communication, but in mutual trust. The three principle factors that brought this about were firstly, the difficulty Viktor Schauburger had in describing accurately in language that others could understand exactly what forces, motion and energies were involved in the processes of implosion. His demonstration of their most elementary form, the centripetal inwinding vortex that forms over a waste pipe, was deemed far too simple and too familiar a phenomenon to be of any consequence. This provoked a rising scepticism and dwindling belief in the validity of Viktor's theories. The second factor relates to Viktor's and Walter's nervousness about possible theft and exploitation of the implosion idea, the result of the many misfortunes experienced by Viktor, as told to Mr 'R' in the above letter. The third factor was the absence of a working prototype.

While earlier accounts of this 1958 venture infer the involvement of the United States government, the initiative actually came from Karl Gerchsheimer. Born in 1903 to a well-connected family in Würzburg, Bavaria, in his youth Gerchsheimer spent a great deal of time in the surrounding forests and had developed an understanding of Nature, of the importance and function of trees and water very similar to that of Viktor Schauburger. In this particular area both Gerchsheimer and Viktor seem to have had a great deal in common. Leaving Germany in

1922, Gerchsheimer's life followed an eventful path. Under contract to the Mexican Government from 1926 to 1935 he reformed Mexican agriculture and introduced the pineapple and banana. He also installed the potable water supply system for the whole of Mexico City and set up the Mexican Highway Police, which under his stewardship became renown for its incorruptibility. Moving to Texas in 1937, where he married his present wife, it would appear that he later became involved in US counter-espionage activities during World War II, the most likely agency being the C.I.C. (Counter Intelligence Corps). From war's end in 1945 to 1950 he was the U.S civilian property administrator-in-chief in charge of all civil administration, logistics, transport and accommodation under the American Army of Occupation, and in this role was the most powerful non-military individual in the American zone. Returning to the United States in 1950, he set up his own metal fabrication business, which manufactured a large number of components under contract to NASA and from which he retired at age 81.

In the years immediately following his return to America in 1950, Gerchsheimer gradually developed a close friendship with Robert Donner, who was the former owner of the Donner Steelworks of Philadelphia, a large and prosperous company. Very much a patriot who waged constant war against subversive activity in the United States, Donner eventually retired to Colorado Springs, Colorado, an extremely wealthy man (Gerchsheimer placed his personal fortune in 1958 at about US\$400 million). He was also the chief executive of the Donner Foundation, a philanthropic organisation set up by his father in Philadelphia in the mid-1940s to fund cancer research which in the 1950s and 1960s awarded grants for educational and other charitable ventures.

Over the years Gerchsheimer had become increasingly disenchanted with technology's use of explosive forces to generate power and motion. Viewing with disdain Werner von Braun's efforts to conquer space with rockets

powered by explosion, a matter he discussed with von Braun himself at NASA, Gerchsheimer gradually became convinced that some other antithetical system of propulsion would solve the problems of powered flight and open the way towards a safe and effective exploration of space. During the course of their rising friendship, Gerchsheimer had often expressed these views to Robert Donner, engaging the latter's interest in the potential of these other forces, if they could be harnessed. In late 1957 these convictions of Gerchsheimer's became more concretised upon reading about Viktor Schauberger and implosion in a German publication - most probably Leopold Brandstatter's booklet "Implosion statt Explosion" published in 1956, although Gerchsheimer does not confirm this, in which Viktor's theories were elaborated.

With this more definite information to hand, Gerchsheimer then enthused Donner with the idea of visiting Viktor Schauberger himself, because if valid, his theories were worthy of closer examination. Moreover to maintain American supremacy as a world power, it was important that an invention of such promise should be developed in the United States rather than in any other country. Agreeing to this, Donner then told Gerchsheimer to make arrangements for immediate travel to Austria. In addition, however, and much to Gerchsheimer's annoyance, Donner also insisted that he be accompanied by his financial adviser, Norman Dodd, who was to be in overall charge of the expedition. A man in his early 60s, Norman Dodd moved in financial and investment circles in New York and was Donner's trusted financial consultant, a position he had held for the preceding 10 years or so, which had resulted in a firm friendship between the two men. Dodd was also the author of an investigative study carried out on behalf of Congress into the financial structures, administrative procedures, taxation, etc., both legal and fraudulent, of various American foundations and like organisations. According to Gerchsheimer, this study, though completed and backed by Congress, was never published, because too

many people in high places would have been implicated.

Donner's decision having been made, Gerchsheimer then contacted his business acquaintance, Harald W. Totten (some reports claim that Gerchsheimer actually worked for Totten), the proprietor of the Washington Iron Works Inc., in Sherman, Texas. He suggested that Totten's foundry, pipe-making and precision engineering works would be the ideal venue for developing and replicating Viktor's devices. Totten's interest was immediately aroused and he agreed to make his premises available. All this having been arranged, Gerchsheimer and Dodd informed Viktor of their impending visit. Flying to Frankfurt in mid-April 1958, they proceeded from there by chauffeur-driven car to Linz on the Danube, where Viktor lived.

After the initial introductions were over, at which Walter Schaubberger was also present, Gerchsheimer began to explain the purpose of their visit. Speaking in fluent German with a Bavarian accent, Gerchsheimer told Viktor, or the "Old Man" as he came to be called, that they had come as representatives of Robert Donner, an American financier interested in the rapid development and practical implementation of Viktor's theories on implosion, for which almost unlimited funds could eventually be made available. Gerchsheimer relates that at the time both Schaubergers seemed to be in a state of high

anxiety about espionage and surveillance, even to the point of expressing concern over the identity and presence of the German chauffeur and guide who had been left outside. Mindful of his 9-month surveillance by American intelligence in 1945/46, a period when Walter Schaubberger had also been interrogated, Viktor was certain that they were once more being watched and expressed his deep-seated unease to Gerchsheimer. At this Gerchsheimer laughed, but at the same time offered to find out. In front of the Schaubergers he rang up the Criminal Investigation Department of the Austrian police. Though this produced assurances that neither Viktor nor Walter were under surveillance, Viktor was still

not happy. Well acquainted with U.S. intelligence agencies as former U.S. property administrator, Gerchsheimer then contacted the F.B.I.'s offices in Germany, thus demonstrating an intimate familiarity with intelligence agencies. Gerchsheimer himself admits that in hindsight this well-intentioned action probably did more to confirm the Schaubergers' suspicions than to allay them.

All this took place at a time when Viktor was involved in a legal wrangle at the Salzburg District Court to recover a number of machines that he had commissioned Sebastian Thurner, a mechanical engineering professor at the Salzburg Polytechnic School, to build for him. These devices were a further development of the home-power generator shown in figs. 1.3a and 1.3b, which apparently had ruptured when first switched on. Due to obstructions or constrictions in the spiral core-pipes, strong pressures had been created within them instead of the anticipated suction, resulting in an explosion. Three redesigned models were apparently built incorporating a pressure-relief valve, one of which Viktor had obtained, the other two being withheld against payment of Thurner's costs.

As discussions with the Schaubergers progressed it became apparent to Gerchsheimer and Dodd that they were not the only parties interested in the development of Viktor's theories on implosion. A number of other organisations including certain Swiss interests were also in the process of negotiating for Viktor's devices. Wishing to put paid to any competition, Gerchsheimer regaled Viktor with assurances as to how much easier it would be to obtain large sums of research money in the United States than in Europe, where so much still had to be directed towards reconstruction. Taking Gerchsheimer's lead, Dodd then urged Viktor to come over to America to complete his life's work, pointing out that historically America had often shown that it was prepared to undertake ventures considered Utopian in Europe. Moreover Viktor's and Walter's work had the potential to solve a problem, whose solution despite much



research had long remained unsolved, namely the generation of virtually free energy.

Financing such research and development would present few problems in the United States, however, for once a small operational prototype had been successfully built, then a research foundation would be set up into which millions of tax-free dollars could be invested. Gerchsheimer then revealed that there was an engineering facility in Texas well able, ready and willing to develop and build Viktor's machines.

His interest awakened, Viktor asked for time to consider their proposal. After Viktor and Walter had discussed the offer between themselves and with Viktor's still reluctant agreement, because he did not really want to leave Austria, Viktor then gave his provisional assent. Under psychological pressure from the rumoured competitors and fearing a successful outcome to their already advanced negotiations with the Schaubergers, the following day Dodd offered Viktor US\$15,000 in down payment on his various data and models, a sum that Viktor had previously requested in order to pay Thurner. In taking this step, however, Dodd apparently exceeded his authority for he had insufficient funds to back the offer up. Promising Viktor that they had every intention of developing implosion in America and asking him to sign nothing until they returned, Gerchsheimer and Dodd hastened back to the United States to confer with Robert Donner and finalise arrangements. Just before they left, however, Viktor warned them stating that:

"I am neither a technologist nor an engineer, all I understand is the principle. I could only agree to come provided certain conditions are met as I don't feel very well physically and I don't think I am really up to the rigours of the journey."<sup>23</sup>

Viktor's concern in this respect was well-founded, for his physical condition at the time was not good. Apart from suffering from emphysema and an ailing heart - the result of his wartime experiences, the preceding winter had taken an enormous toll of him, to the point where he felt that he had

little time left to live. In response it was immediately proposed that Viktor should be accompanied by an Austrian doctor in whom he had confidence and who would look after him, all expenses being paid by the Americans. At this Viktor brightened and was eventually accompanied by his son-in-law, Dr Walter Luib.

A few days later at Donner's house in Colorado Springs, Gerchsheimer and Dodd delivered a full report on events in Austria. While agreeing to authorise payment of Dodd's offer in full, Donner also wanted to secure his investment and asked his lawyer to draw up a contract for eventual signature by Viktor. The substance of this contract required Viktor to acknowledge the receipt of the US\$15,000, to be paid in cash as an initial payment towards the acquisition by the Donner, Dodd, Gerchsheimer consortium of all relevant data, designs, drawing and models related to Viktor's implausible theories. Walter Schauburger was also to receive an advance of US\$5,000 at the same time.

Returning to Europe in early May, Gerchsheimer and Dodd drove to Linz in a white Mercedes two-seater sports-car that Gerchsheimer had bought on arrival in Germany. Finding Viktor unwell when they arrived, they picked him up or arranged for his transfer to Bad Ischl. Here Viktor was accommodated in a villa just outside the town, where they could keep an eye on him while his health improved and also ward off any further contact with possible competitors. First on the agenda was the contract. This stated that Viktor's sojourn in the United States would be for 3 months only, and that Walter Schauburger, a physicist and mathematician, was to accompany his father and would be expected to stay for a year in order to assist in the scientific interpretation of Viktor's ideas for which there was often no recognised scientific terminology. One further condition required that Viktor grant permission for all pertinent data and devices necessary for the success of 'Project Implosion' to be transferred to the United States. Before agreeing to sign the contract, however, Viktor stipulated that Alois Renner, his

trusted friend and exceptionally gifted machinist who had manufactured some of Victor's devices, would have to be brought over to the United States to collaborate with Victor in building the models. Renner's salary in this regard was to be paid by Donner or the Washington Iron Works. Concurring with Viktor's demands, this first agreement, whereunder Viktor and Walter were required henceforth to maintain total secrecy, was signed on the 9th of May.

While waiting for Viktor's health to recover sufficiently for the journey and the better to acquaint themselves with his ideas, Gerchsheimer and Dodd continued their discussions with Viktor and Walter on a daily basis, talking first with Viktor in the morning and Walter in the afternoon. While it has been contended that seeing Viktor and Walter separately was intentional, it was far more probably due to the fact that Viktor's health was better in the morning and that there was insufficient space in the Mercedes for more than two people comfortably.

In their morning talks over and after breakfast, Viktor tried to explain everything about his theories of implosion and how they could be implemented practically, Gerchsheimer admits that he was very impressed with Viktor's wide knowledge of forestry and water, though not comprehending his detailed explanation of implosion. In the afternoon the attention of the two Americans turned to Walter, who, while alluding to a good knowledge of physics, mainly elaborated on his activities in connection with the "Grime Front" (Green Front), a movement started by Viktor in the early 1950s to inaugurate large scale reafforestation. In this way Gerchsheimer and Dodd gradually obtained a more concrete idea of what the Schaubergers had to offer. In my discussions with Gerchsheimer, he revealed that in his opinion Walter neither knew nor understood much about his father's theories.

While Gerchsheimer was relatively well versed in the overall concept of implosion and also had a greater understanding of

Nature's processes, Dodd's life had been devoted to finance and investment. Dodd was therefore something of a layman during these discussions and unable to take any really effective part, having to rely on Gerchsheimer's opinion as to the substance and validity of Viktor's ideas. In this way their roles gradually reversed with Gerchsheimer gaining the more commanding position. In some ways, however, Dodd was more instrumental in bringing the Schaubergers to America than Gerchsheimer. His quiet, forthright and sincere nature inspired the Schaubergers with confidence and it was essentially because of him that they eventually agreed to the Americans' overtures. After about three weeks of talks and feeling in better health, Viktor finally agreed to go, but reiterated categorically that:

"One thing is to be thoroughly understood. This whole affair is not to take longer than three months; three months only and not a single day longer!"<sup>24</sup>

Early in June Viktor and Walter were requested to fill out a comprehensive questionnaire for the purposes of obtaining visas to the United States. Shortly thereafter on the 17th of June, 10 days before their departure, they were taken to the American consulate in Salzburg to have the necessary visas stamped into their passports. 10 minutes after their arrival, their passports were returned to them. Shaking their hands after the formalities had been completed, the consul then congratulated them on the four-year duration of their visas. Both Viktor and Walter found this remark rather unsettling, for contrary to the original agreement, whereby Walter would be in the United States for only one year and Viktor for only three months, it now appeared that their presence was required for four years. At this early stage of the affair, however, this mooted extension of their sojourn may in no way have reflected what was actually planned at the time, because visas are often issued with a currency of four years. The Schaubergers' trepidations, while well-founded from their point of view owing to

their limited experience of post-war travel, would therefore have had no basis in fact.

From the 18th of June onwards at Gerchsheimer's request and expense, Walter set about gathering together all the prototypes, working models, documents, designs, drawings, patents, of whatever kind, which he thought would be material to the research and development of implosion. These were eventually packed into cartons and crates and forwarded by sea to the Washington Iron Works Inc. in Texas, where Viktor devices were to be fabricated. Prior to leaving for Frankfurt to arrange the necessary air-tickets, Gerchsheimer advised the Schaubergers to leave all traditional Austrian clothing, 'trachten', 'lederhosen', etc., behind as they would be unsuited to the climate in Texas. More normal apparel would also permit their discrete and inconspicuous integration into American life.

On the 25th of June Viktor, Walter and Dr. Luib left Linz for Frankfurt by train. There

they were met by Gerchsheimer and Dodd, who had arrived two days earlier, and were taken to an American-owned hotel for the night. At 10 pm the following day all five boarded a Pan American Airways flight and were flown non-stop to New York, a relatively low-altitude, bumpy flight of 11 to 13 hours according to headwind, which for Viktor in his low state of health would have been a gruelling experience. Here Dodd had arranged for the Schaubergers and Dr. Luib to be put up for two or three days at the University Club at 1 West 54th Street, of which Dodd was a member, so as to allow Viktor to recover from the long flight. The following day, while Viktor remained in his room, Walter went sight-seeing and was taken to the top of the Empire State building. On the 30th June a small celebration was held for Viktor's 73rd birthday. While earlier reports have stated that a large banquet was held in their honour by the U.S. Chamber of Commerce, Gerchsheimer denies this on the grounds that Donner would have shunned any such publicity.

When the time came for departure for Texas on the 1st of July, Dodd, who hitherto had been their constant companion, was apparently no longer to accompany them. In an unguarded remark by Gerchsheimer, Walter learned that Dodd was about to be dismissed by Donner. Dodd himself was only informed of this about three weeks after the Schaubergers had arrived in Texas. The reasons for Dodd's dismissal are not recorded, but a newspaper article of the 21 August 1959 in the Gazette Telegraph of Colorado Springs reports on a law suit against Donner in which Dodd sought US\$100,000 in damages for wrongful dismissal. Unaware of his impending dismissal, however, Dodd set about arranging for the immigration of Renner and his wife to the United States as stipulated in the contract signed in Linz. In this endeavour he apparently pulled a number of strings in high places in order to expedite matters, as no further progress could be made on the project until Renner had arrived. This took considerably longer than anticipated owing to the emergence of certain unstated irregularities,



Fig. 1.4 Viktor Schaubberger embarks for Dallas



Fig. 1.5 On the ranch outside Sherman

which delayed the Renners arrival in Texas until September 3rd.

Boarding the American Airlines plane (fig. 1.4), Viktor, Walter, Dr. Luib and Gerchsheimer then flew non-stop to Dallas. As they flew over the mid-western States, Viktor looked down despondently at the near treeless landscape passing by underneath, which was dotted here and there by bores and high water towers, all of which provoked the remark:

"What's the point? From a biological point of view what's down there is a dying land. The water's had it. The soil's had it and the earth is as dry as a hot plate! You haven't the vaguest idea what water is! Water belongs inside the earth and not above it. What's in these water towers is no longer water, but firewater!"<sup>25</sup>

Arriving in Dallas they were greeted by Gerchsheimer's family and Harald W. Totten and taken to a restaurant to have something to eat and relax from the journey. Pending decisions as to their final accommodation,

the Schaubergers and Dr Luib spent two or three days in motel in Sherman before being comfortably installed in Harald Totten's large, air-conditioned ranch-house complete with swimming pool about 3 miles from town. Encouraged to rest and acclimatise themselves while waiting for Renner to arrive, here they were provided with all they needed, which included a telephone, a cook and a car and chauffeur to take them into town when necessary (fig. 1.5).

For the first three weeks while waiting for Renner's arrival, Gerchsheimer continued to try to gain greater insight into Viktor's ideas. As has been mentioned earlier, however, the language and terminology Viktor used to describe the dynamics of implosion and the functioning of his machines was very difficult to understand in any concrete way. Moreover, Viktor continually reiterated that to understand it all properly it was imperative that an actual machine should be examined. This never happened. Walter was apparently of no use whatsoever in any of these explanations either, because at the time he too was insufficiently acquainted with his father's theories and their implementation. As a result Gerchsheimer found Viktor's description of the processes of implosion and his higher form of atomic energy increasingly incomprehensible - gobbledygook was how Gerchsheimer described it to me. Becoming more and more exasperated and frustrated with the whole affair, he eventually came to the conclusion that the Schaubergers had nothing to offer. Viktor also had problems, but of a different nature. Coupled with the difficulties of communicating his ideas to Gerchsheimer, isolation in the oppressive heat and vastness of Texas, and inactivity due to Renner's non-arrival, Viktor's psychological and physical condition declined. On Gerchsheimer's advice and with Dr Luib's agreement, Viktor was removed to a clinic near Sherman for observation. Eventually staying some four weeks, he apparently responded satisfactorily to treatment. The end-effect of Viktor's physical lapse, however, was to increase his longing to return to his natural habitat in Austria. One full moonlit night in August, while standing in the evening cool, Viktor said to Walter:



"You have no idea how wonderful it will be, when I can tread European soil once more ! I felt myself obliged to come to America despite my health and age. Whatever it was that I could do, I do believe I have now done."<sup>26</sup>

Seriously concerned for Viktor's physical condition, Walter proposed a plan of work which he submitted to Gerchsheimer on the 9th of August. In this Walter suggested that once Viktor was well enough to travel, both he and Walter should then return to Austria, where Viktor would continue to act as consultant. Having safely installed his father, Walter would then return to America with his family for a year with visitor status only to oversee the development of the implosion devices. This proposal was evidently rejected by Gerchsheimer, who, unable to evaluate Schauburger's data himself, but being financially committed to the project, had meanwhile voiced his rising disquiet and disbelief to Donner.

Upset at hearing this and anxious for the success of the venture Donner then flew to New York and on to the National Atomic Research Laboratories at Brookhaven, Long Island, to seeking expert scientific opinion on Viktor's theories and his new form of atomic energy. In discussions held over the next three days from the 15th - 17th August culminating in a written agreement, the services of Eric A. Boerner, a native German speaker and the head of a team of design engineers working on the Cosmotron Project, were retained to act as go-between. (Used for the investigation of atomic structures and nuclear particles, the Cosmotron was a proton (ionised hydrogen atom) accelerator or synchrotron, which made use of a large toroidal electromagnet to generate high electric and magnetic fields. These were required to guide and accelerate the particles to an energy of 3,000,000,000 electron volts (3 GeV) in preparation for subsequent collision with atomic nuclei through which the behaviour of the scattered nuclear particles could be evaluated.) While no nuclear physicist himself, Boerner was sufficiently conversant with the terminology and fundamentals of nuclear physics to be able to

translate and transmit any information to the scientific evaluators that the Schaubergers might provide. At one point during these negotiations, Boerner apparently suggested that a multi-million dollar implosion research centre be set up in Arizona, perhaps with an idea of leading it himself. Boerner evidently mentioned this proposal to the Schaubergers, who seem to have misinterpreted it as fact, although it had already been rejected by both Gerchsheimer and Donner. Having finalised the agreement, Donner returned to Colorado Springs the next day. From this point matters began to accelerate, reaching their zenith in early to mid-September.

On the 20th of August, some seven weeks after their arrival in Texas, Gerchsheimer instructed the Schaubergers to write up their own separate reports about implosion, at the same time announcing that a decisive conference was to take place in three weeks' time. Viktor was told that he should write his reports in his own words, regardless of whether the concepts or terms he used might or might not be correct, because any pearls of wisdom they contained would still be extracted. Headed P.O. Box 28, Sherman, Texas, Viktor Schauburger's reports were addressed to Mr Eric. A. Boerner, National Atomic Research Laboratory, Brookhaven, Upton, New York State. As a subheading it was further indicated that their submission was at the behest of Mr Robert Donner or his representative, Mr Karl Gerchsheimer, in accordance with the agreement drawn up on the 15th, 16th & 17th August 1958 at Brookhaven. The writing of these reports took about 10 days from the 20th to the 31st August, Walter's mainly addressing and reinterpreting the known facts of physics, one 12 page report discussing various aspects of bio-magnetic axes. When finished these were collected on a daily basis by Gerchsheimer, who forwarded them post-haste to Boerner for translation and transmission to the scientific evaluators.

On all accounts it seems that much of the communication between the Schaubergers and Gerchsheimer were fairly perfunctory, with few chances of real

clarification about the personalities, project and programme. Being thus kept largely in the dark, patience and tolerance between both sides began to be very strained with Gerchheimer's communication becoming increasingly terse and he himself more distant. It would therefore seem quite likely that the Schaubergers were not wholly informed as to who Boerner actually was and came to believe that he was the director of the Cosmotron Project. Thus erroneously invested with high office at the National Atomic Research Laboratories, Boerner inevitably became bracketed with the cutting edge of nuclear research and in consequence fallaciously accredited with government backing and top secret clearances. As a result the Schaubergers came to believe that Boerner was an expert on all questions concerning energy. On occasion during discussions at which I was present, Walter Schauburger admitted that in the process of producing their reports, it dawned on them that a bomb could possibly be produced through implosion that was magnitudes more powerful than the hydrogen bomb. Assuming Boerner to be more influential than he was, Viktor and Walter became convinced that all the information they were supplying to him was being passed directly to the U.S. government and the military. Since the Schaubergers' principal preoccupation concerned the enhancement of Life and no doubt anxious not to enable or participate in any way in the development of such a lethal device, this may well have contributed to the communication difficulties that peaked towards the end of the project. These problems were indubitably exacerbated by Viktor's later vow of silence, which in the light of the above realisation could well have been more than accidental and would also go a long way towards explaining Walter's behaviour at the third and most important meeting in Colorado Springs, described later.

The cartons and crates despatched from Europe having meanwhile arrived in Sherman, on the appointed day in early September the conference was convened. It was attended by Viktor, Walter, Dormer,

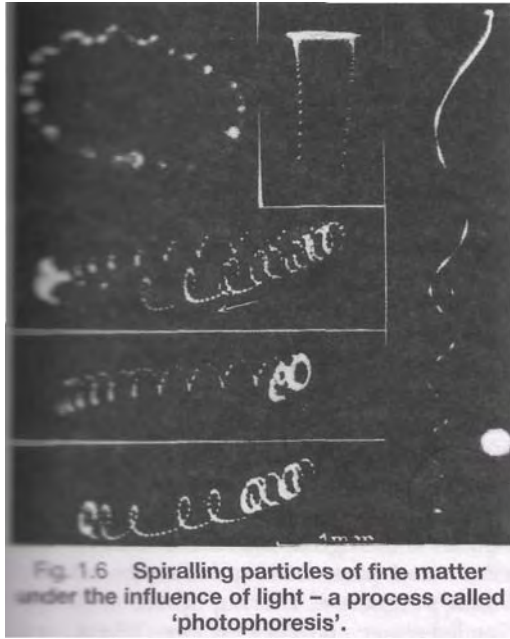
Boerner and possibly Renner. This first of three meetings then took place at Totten's ranch outside Sherman. Although chaired by Donner, it was addressed principally by Boerner, who declared that Project Implosion was now a viable proposition, because Viktor's ideas and basic premises had been found to be in agreement with newly established facts of physics, namely the functional dynamics of implosion. An energy concept in accord with Nature's processes could therefore be realised. In Boerner's view the solution of the problem of energy lay in the proper interpretation of Max Planck's equation  $E = h\nu$ , formulated in 1900, and the Friedrich Hasenohrl-Albert Einstein equation  $E = mc^2$ .<sup>27</sup> Walter's unveiling of the true interpretation of  $c^2$  had clarified the way in which Nature's energies were accumulated and therefore there was now a sound mathematical and physical basis upon which Project Implosion could proceed (see boxed data entitled "The Consonances between  $E = h\nu$ ,  $E = mc^2$  and Kepler's 3rd Law of Planetary Motion", p.24). This having been established a start could now be made. Viktor and Walter were then told that a four-year period of development would be required before fruition. Energy was problem No. 1 for the United States and its solution required an all-out effort, particularly from Viktor and Walter, which would necessitate their presence in America for eight years. With this statement no doubt all Viktor's and Walter's earlier suspicions about the four-year currency of their visas were thoroughly confirmed. To be fair, however, the possibility exists that a stay of such length had not originally been envisaged, but evolved into a necessity, the result of the far more comprehensive information the Schaubergers had supplied. Viktor was deeply shocked at this announcement, partly at the prospect of an 8-year sojourn in a foreign land isolated by language, but more importantly at the enormous deceit, if deceit it was, that had been perpetrated on them. When Viktor interjected animatedly that in the initial agreement he was only required to stay for three months, he was told that he would have two days to accustom himself to

The Consonances between  $E = hv$ ,  $E = mc^2$  and Kepler's 3rd law of Planetary Motion

In clarification of the above, Planck's equation  $E = hv$  or  $hf$  relates to his law of radiation which states that: "Energy only exists in multiples of whole numbers. The total action of energy is always a whole-numbered multiple of  $h$ ." (postulate of quantum theory). In this equation the energy of electromagnetic radiation  $E$  is the product of a universal and fundamental physical constant  $h = (6.62 \times 10^{-34})$  joule/seconds -, Planck's constant) times a frequency  $f$  or  $v$ , which can only be emitted or absorbed in discrete packets or quanta. This leads to the concept of energetic periodicities, which can be variously interpreted as longitudinally pulsative, cyclical, rotational, helical or wave-like forms of motion, Nature expressing herself physically and exclusively through the properties of the whole number or the creation of discrete individualities, atoms, trees, humans, etc. The analogous Hasenohrl- Einstein equation  $E = mc^2$  on the other hand states that energy  $E$  is the product of mass  $m$  times the speed of light  $c$  squared. However, since electromagnetic radiation can only be manifested in discrete quanta, as above, then the speed of light squared as a factor in electromagnetic radiation, which according to relativity is assumed to be an invariable constant, should also be interpretable in terms of periodicities - whole numbers and their reciprocals, the latter being inversely proportional to and therefore true harmonics of the former. In consequence of this, if as Walter Schaubberger claimed at the time, radiation is propagated through space not in linear fashion, but spirally, then the absolute speed of light, i.e. the combined spiral and translatory (radial) velocities at which light travels along a given trajectory through space, must vary according to frequency, its speed being a product of angular acceleration and spiral radius of action.

Evidence substantiating this spiral movement was produced by Prof. Felix Ehrenhaft at the Physics Department of Vienna University in 1949 through a process known as photophoresis. Reported in the *Acta Physica Austriaca* (Vol. 4,1950 and Vol. 5,1951), the behaviour of barely perceptible particles of matter and gas particles enclosed in glass tubes were observed when illuminated by concentrated light-rays of various frequencies. Observations of this phenomenon were made under conditions varying from high pressure to high vacuum (30 atm to  $1 \times 10^{-6}$  mm Hg [Hg = mercury]) and it was concluded that since the spiral movement of the observed particles was

caused by light-rays, the particles had to be propelled along the same spiral path as the light itself (fig.1.6). It was also determined that light magnetises matter and noted that while some particles spiralled away from the light source, others such as chlorophyll, gyrated towards it. Measurements also determined that the observed particles orbited up to 650 times per second while rotating at 4,000 cps about their own axes, an effect only possible because the calculated energies involved, apparently endowed with antigravitational properties, were 70 times more powerful than gravity. According to Walter Schaubberger's formulation derived from standard physics, where energy  $E$  in the form of work  $W$  is the product of mass  $m$  x acceleration  $a$  x displacement  $s$ , e.g.  $W$  or  $E = mas$ , the speed of light squared  $c^2$  can be equated with  $as$ , or more specifically as angular acceleration  $rw^2$  x radius  $r$ . For each rotation through  $360^\circ$ , long wavelength, low frequency radiation would therefore describe a wider (greater radius) and thus longer (slower angular acceleration) spiral path than short-wave, high frequency radiation. In view of this the absolute speed of light as it travels forwards along a given axial path over this same distance is NOT CONSTANT, but as stated above is the varying product of the reciprocities of spiral radius  $r$  x angular acceleration  $rw^2$ . Wavelength thus becomes either the spiral or axial distance between  $360^\circ$  nodes and frequency the number of  $360^\circ$  rotations within a given period of time. Long-wave and short-wave frequencies would therefore arrive at fractionally different times over a given distance. This may well account for the equally fractional differences in the measured speed of light to be found in various textbooks, different because the frequencies of the light measured were marginally different. By extension the mass  $m$  of a given elementary particle, atom, etc., or its momentum could therefore be deemed to be dependent upon its characteristic rate of rotation, which in turn is the product of the energy-packet's or quantum's radius of action and angular acceleration; the tighter the radius, the faster the angular acceleration and periodicity (frequency), the more powerful the energetic effect and the greater the mass, and vice versa. This reciprocity would also explain why the measured intensities and energies of cosmic radiation, for example, are higher than those of x-rays, the radius of the cosmic ray spiral being significantly smaller and therefore its kinetic



the idea, because Viktor too would have to make some sacrifices. Donner then closed the conference and all present left for their cars except for Viktor and Walter, who remained behind.

The second conference, which was scheduled not long after the first, took place in the main workshop of the Washington Iron Works in which the crates despatched from Austria had meanwhile been placed. Some employees were ordered to dismantle the most important prototype, namely the one built by Thurner, whose central core element was a single casting consisting of a number of whorl-pipes (figs. 1.3a & b). As an eye-witness, Walter relates how this was brutally cut open with metal-cutting power-saws, leaving Viktor totally speechless. While some continued their examination unmoved by this event, Viktor and Walter were asked to accompany the

energy and translatory velocity commensurately higher. With impulsive vortical motion, where the radius of action constantly reduces, the increase in angular acceleration and therefore the magnification of the energetic effect would be automatic

A second factor here may relate to Walter Schauburger's re-interpretation of Sir Isaac Newton's reformulation of Kepler's 3rd law of planetary motion. In Johannes Kepler's original formulation this states that the square of the orbital period  $T$  is proportional to the cube of the orbital radius  $a$ . in the form:

$$\left(\frac{T_1}{T_2}\right)^2 = \left(\frac{a_1}{a_2}\right)^3$$

Taking the periods and radii of all the planets into account, the average value for  $T^2/a^3$  amounts to 2.987 773 813, which seems to have a connection with the values of 29 elaborated in fig. 3.4 (p. 45). In Newton's equation for gravitational attraction between two celestial bodies

$$(1) \frac{mv^2}{r} = \frac{GMm}{r^2}$$

where  $G = 6.67 \times 10^{-11} \text{ N.m}^2/\text{kg}^2$  = Gravitational constant;  $M$  = the mass of the Sun;  $m$  = a given planet's mass;  $r$  = the radial distance from the Sun;  $v$  = the planet's mean orbital velocity.

According to Walter Schauburger's re-interpretation,  $M$  can have the value of 1 and since  $G$  is a constant, it is merely a multiplier and therefore can be removed from the equation without negating the equation's validity. Thus equation (1) above becomes

$$\begin{aligned} (2) \frac{mv^2}{r} &= \frac{m}{r^2}; (3) \frac{r^2}{r} = \frac{m}{mv^2}; (4) \frac{r^2 v^2}{r} = \frac{m}{m} \\ &= (5) \frac{r^2 v^2}{r} = \frac{m}{m}; = (6) r v^2 = 1 = \text{constant} \end{aligned}$$

If  $r$  is equal in length to 1 astronomical unit (1 AU = the distance between Sun and Earth), and the Earth's mean orbital velocity = 29.799 328 85 km/sec, then  $r v^2 = 888$ . Using 888 as the hyperbolic constant, the orbital velocities and radii of any planet can be calculated and plotted on a rectangular hyperbola. The combined concept that light travelled or orbited spirally about its axis of propagation and the simplification of Kepler's 3rd Law, may therefore provide the basis for determining the actual speed and radius of action of any given electromagnetic radiation, for once the radius of action of a particular frequency can be determined, then the radii and actual spiral velocities should be determinable for all other forms of electromagnetic radiation. It is these congruencies that may have provided the "sound... basis on which... to proceed".



others to a nearby office for further detailed discussion of the project. Both Viktor and Walter had many questions arising from the previous meeting and urgently asked for more information and clarification. Their questions were brushed aside, however, and they were told that these would be answered at the next conference. On the way back to their quarters, Viktor confided to Walter that he was going to insist that he be returned to Austria after the agreed three months had passed, otherwise he would henceforth remain silent. When Gerchsheimer appeared the next day Viktor at once informed him that, since they had broken their agreement with him, he would remain silent and would not cooperate in the project.

About three days after this 2nd meeting, Viktor having returned to hospital, Walter accompanied Gerchsheimer on a trip to Colorado Springs for a decisive 3rd meeting with Donner and executives of the Eastern Oil Company and Trunk Line Company. Attended by their scientific advisers, they had flown specially from New Mexico for the meeting to be held on the following day. While Gerchsheimer stayed with Donner, Walter was put up at a nearby hotel, Gerchsheimer having lent him his imported white Mercedes to drive to the meeting at the Broadmoor Hotel in the morning. The meeting took place as scheduled, but without Walter's attendance. Instead he had apparently driven up to the top of the famous Pike's Peak (about 14,000 ft), returning from there only in the late afternoon. When he eventually arrived at the Broadmoor Hotel Gerchsheimer was almost speechless with fury, because Walter's attendance had been crucial to the success of the conference, which in his absence had been a total fiasco. Demanding an explanation, Walter apparently answered that he had simply forgotten. This only added fuel to Gerchsheimer's fire, because Walter was an intelligent man and his non-attendance could therefore not have been an accident. Why Walter did this will never be known. Perhaps he was motivated by his and Viktor's desire to withhold any further information on implosive nuclear

energies. Whatever the reason, it effectively scuttled the whole project. Donner was equally furious and after ordering Gerchsheimer to send the Schaubergers home at once, instructed his lawyer, Mr Ross, to draw up a final contract for the Schaubergers' immediate signature.

Two days later on the 13th of September at about 5 pm, Viktor and Walter were collected by Gerchsheimer for the fourth and final meeting, which took place in Totten's office. While Totten looked on grimly from behind his desk, Donner sat at a small table in the middle of the room. When Viktor entered he was shown to a seat opposite Donner, the remaining company, Gerchsheimer, Donner's lawyer and Walter standing at the back of the room, Donner then signed a document in front of Viktor and passed his golden pen over for Viktor's signature. Picking up the document Gerchsheimer handed it to Viktor and announced that it had been decided to permit his return to Austria, the only stipulation being that he should countersign the document. At first Viktor demurred, because it was written in English, a language he could neither read nor understand. Looking to Walter for help, an argument then broke out between Walter and Gerchsheimer, Walter insisting that the document be translated into German so that Viktor would know what he was supposed to sign. Gerchsheimer became extremely irritated at this and asked Walter to keep silent. He then turned to Viktor and assured him that he could safely sign the document unread, for with its signing all his wishes would be fulfilled.

At this point Gerchsheimer reminded Donner that they had to be at the airport in ten minutes, whereupon Walter demanded that the contents of the 'contract' should at least be translated to Viktor orally. By this time in a state of semi mental paralysis born of his desperation to return home and to get the whole matter over quickly, Viktor told Walter that he wanted to sign the agreement whatever it contained. Walter then asked Gerchsheimer for a copy of the document, so that he could check as far as he was able, the

accuracy of the salient points of the oral translation.

It is not known how fluent Walter's English actually was. In London in 1951, however he was invited by Richard St. Barbe Baker to give lectures and conduct experiments at the Dorchester Hotel to which the full diplomatic corps had been invited, an event that St. Barbe Baker described as highly successful. While in England Walter gave lectures in Cambridge, Birmingham and Oxford, and also took the opportunity to visit William Lawrence Bragg (Nobel prize for physics 1915 for his x-ray study of crystal structures) and Sir James Chadwick (Nobel prize for physics 1935 for his 1932 discovery of the neutron). Apparently there had been few communication difficulties during their exchanges of view, although both Bragg and Chadwick may well have spoken German. All this having happened some seven years previously, however fluent Walter may have been at the time, his English had no doubt become extremely rusty in the interim.

This demand to sight the document, however, provoked even further argument. When it was finally explained to him in German, Viktor quickly signed it. It was only later that the soul-destroying realisation dawned on him that he had signed away his whole mind, his whole life and everything

for which he had striven. I have studied this document myself and it does state in quite unequivocal terms, that not only were all Viktor's models, sketches, prototypes, reports and other data to become the sole property of the Donner-Gerchsheimer consortium, but that Viktor was to commit himself to total silence on anything connected with implosion thereafter. Moreover, any further concepts or ideas he might develop in the future were also to belong to Donner and Gerchsheimer, and under no circumstances whatever could he discuss these or anything else with anyone else.. While on the face of it this coercive action by the Americans might appear reprehensible, it could equally well be argued that, having expended considerable sums on this venture, they at least wanted to recuperate some of

their losses by legally acquiring possession of Viktor's apparatuses as collateral. This would no doubt have been done with a view to exploiting them commercially in some way in the future. The manner in which this was achieved notwithstanding, to legitimise such acquisition, the signing of the above document by Viktor personally would have been a legal necessity.

The deplorable upshot of all this, however, is that all Viktor's models, prototypes, drawings, detailed data, including Professor Popel's original report implying that what might be termed "Negative Friction" was an actuality, have remained the possession of the Donner-Gerchsheimer consortium. That this report was actually part and parcel of this project is confirmed by Viktor's reference to it in one of his reports to Boerner dated 23/24 August 1958.

On the evening of the 17th of September Viktor and Walter were told to prepare for an early start the following morning at 5.45 am. Ready and waiting, nobody appeared until 8.30 am. Gerchsheimer had overslept. In great haste they left for the airport, Viktor being transferred to Totten's car in Sherman. Walter continued the journey with Gerchsheimer, who reminded him once more of the conditions stipulated in the last agreement signed with Donner, namely that all further discussion of implosion and implosive devices in the future was restricted to U.S. personnel. In other words, that once in Europe, both father and son were constrained to total silence on the subject and the associated project.

Due to this late start, Viktor and Walter arrived at the airport only eight minutes before take-off for New York. Arriving there several hours later, they changed planes and flew to Frankfurt by way of London, where they had to make an emergency landing. Always a man to stand by his word or signature whatever the ultimate outcome to himself, on the way back in the plane Viktor turned to Walter and expressed the deep sadness of his innermost being, saying with utter resignation words to the effect that;

"I no longer own my own mind. I don't even own my thoughts. After all I've done, finally there is nothing left. I am a man with no future." Leaving Frankfurt by train a few hours later, they arrived in Linz on the 20th of September at about midnight. On the afternoon of the 25th of September 1958, five days after arriving home in Linz, Viktor Schaubberger, who throughout his whole life had fought so hard to heal the environment

and improve the lot of humanity, died a broken man.

"They call me deranged. The hope is that they are right. It is of no greater or lesser import for yet another fool to wander this earth. But if I am right and Science is wrong, then may the Lord God have mercy on mankind!!"<sup>28</sup>

Viktor Schaubberger - 30 June 1885 - 25 Sept. 1958.

## Notes

### 1. 'IF' — \* —

If you can keep your head when all about you  
Are losing theirs and blaming it on you,  
If you can trust yourself when all men doubt you,  
But make allowance for their doubting, too;  
If you can wait and not be tired by waiting,  
Or being lied about, don't deal in lies,  
Or being hated, don't give way to hating,  
And yet don't look too good, nor talk too wise;  
If you can dream and not make dreams your master,  
If you can think, and not make thoughts your aim,  
If you can meet with triumph and disaster,  
And treat those two impostors just the same;  
If you can bear to hear the truth you've spoken  
Twisted by knaves to make a trap for fools,  
Or watch the things you gave your life to broken,  
And stoop to build them up with worn-out tools;  
If you can make one heap of all your winnings,  
And risk it on one turn of pitch-and-toss,  
And lose, and start again at your beginnings,  
And never breathe a word about your loss;  
If you can force your heart and nerve and sinew  
To serve your turn long after they are gone,  
And so hold on when there is nothing in you  
Except the will which says to them: 'Hold on!'  
If you can talk with crowds and keep your virtue,  
Or walk with kings, nor lose the common touch,  
If neither foes nor loving friends can hurt you,  
If all men count with you, but none too much;  
If you can fill the unforgiving minute  
With sixty seconds' worth of distance run,  
Yours is the Earth and everything that's in it,  
And - which is more - you'll be a Man, my Son!

Rudyard Kipling (1865-1936)

2. The Ages of Gaia, by James Lovelock: W.W. Norton, New York
3. Our Senseless Toil, Pt.I, pp.28-29 (see fnt. 16).
4. Implosion, No.27, p.29 "The Winding Way to Wisdom" ("Der gewundene Erkenntnisweg")  
Implosion, No.48, p.27, "Nature's Secrets Unveiled" ("Entschleierte Naturgeheimnisse")
5. In Viktor Schaubberger's writings in German, the prefix 'UR' is often separated from the rest of the word by a hyphen, e.g. 'Ur-sache' in lieu of

'Ursache', when normally it would be joined. By this he intends to place a particular emphasis on the prefix, thus endowing it with a more profound meaning than the merely superficial.

This prefix belongs not only to the German language, but in former times also to the English, a usage which has now lapsed. According to the Oxford English Dictionary, 'ur' denotes 'primitive', 'original', 'earliest', giving such examples as 'ur-Shakespeare' or 'ur-origin'.

This begins to get to the root of Viktor's use of it and the deeper significance he placed upon it. If one expands upon the interpretation given in the OED, then the concepts of 'primordial', 'primeval', 'primal', 'fundamental', 'elementary', 'of first principle', come to mind, which further encompass such meanings as:

- pertaining to the first age of the world, or of anything ancient;
- pertaining to or existing from the earliest beginnings;
- constituting the earliest beginning or starting point;
- from which something else is derived, developed or depends;
- applying to parts or structures in their earliest or rudimentary stage;
- the first or earliest formed in the course of growth.

To this can be added the concept of an 'ur-condition' or 'ur-state' of extremely high potential or potency, a latent evolutionary ripeness, which given the correct impulse can unloose all of Nature's innate creative forces.

6. Implosion No.7, p.1, "The 1st Biotechnical Practice" ("Die erste biotechnische Praxis").  
Implosion, No.67, p.1, "Let the Upheaval Begin!" ("Den Umbruch beginnen!").
7. Published 1: Pearson Foundation of Canada, 1949. Transl. by Maj.Gregory Pearson in Outer Mongolia 1921 with the Panchen Lama's permission. Pub.2: Colin Smythe, Gerrards Cross, U.K.
8. *ibid.*, p.23, para.73.

9. *ibid.*, p.24, para.74.
10. Sec 7.4 spec.ed. *Mensch und Technik*, Year 24, Vol.2, 1993, wholly devoted to recently discovered information on Viktor Schaubberger contained in the Swiss, Arnold Hohls' notebook.
11. A handwritten note, dated July 1936, on the back of a photograph of Viktor Schaubberger. 12. "Return to Culture" ("Zurück zur Kultur"), by Viktor Schaubberger, p.1.
13. *Implosion*, No.81, p.6, extract from letter to Mr. Kroger.
14. *Implosion*, No.10, p.30. "Natural Farm Husbandry" ("Naturnahe Landwirtschaft").
15. Letter from Viktor Schaubberger to Josef Brunnader, 20.10.1956.
16. TAU, No.144, p.31: Letter (12.Mar.1936) to Dr. Ehrenberger, M.Eng., Research Inst. for Hydraulic Engineering, Ast.Sec'y to the Minister, Federal Ministry for Agriculture and Forestry, Vienna, Austria.
17. *Our Senseless Toil - The Source of the World Crisis* ("Unsere Sinnlose Arbeit - die Quelle der Weltkrise"), Pts.I & II, 1933-34: Krystall Verlag, Vienna. Defunct in 1938.
14. *Implosion*, No.51, p.23, "What happens next?" ("Wie geht es weiter?") by Leopold Brandstatter.
19. *Implosion*, No.29, p.22, "Home Power Generator - an Illusion ?" ("Das Heimkraftwerk - eine Illusion?") by Aloys Kokaly.
20. *Implosion*, No.17.
21. *Implosion*, No.83, p.20, "Harmony as a Question of Existence" ("Harmonie als Existenzfrage") by Ing. Wilhelm Reisch.
22. *Implosion*, No.49, p.17, "The Legacy of Viktor Schaubberger" ("Die Erbe Viktor Schaubergers") by Aloys Kokaly.
23. *Implosion*, No.93, p.3, "The Death of Viktor Schaubberger" ("Der Tod des Viktor Schaubberger") by Raimund Lackenbacher.
24. *ibid*, No.93, page 3.
25. *ibid*, No.93, page 5.
26. From "The Death of Viktor Schaubberger" ("Der Tod des Viktor Schaubberger") by Raimund Lackenbacher, 'Neue Illustrierte Wochenschau', No. 8, Sunday 22nd February 1959.
27. While Einstein is generally credited with its formulation - and it may well have been an almost simultaneous, but independently arrived at discovery - chronologically it was first postulated in 1903 by Prof. Friedrich Hasenohrl (30.Nov.1874-7.Oct.1915), Head of Physics at the Univ. of Innsbruck and later Vienna, Austria, in the form  $m = E$ . Since Hasenohrl died in the First World War, he was never able to establish his priority in the formulation of this equation.
28. *Implosion*, No.99, p.13. Quotation.

## 2

# ENERGY

### 2.1 Energy Today

**A**s we observe the world around us today, signs of deterioration and symptoms of degeneration are everywhere evident. We are engulfed by a concatenation of interrelated crises; crises in energy, crises in the global water-balance, crises in agriculture and, worst of all, crises in Nature herself. Wherever we look, things are not going nearly as well as we have been led to believe. The downward spiral of disintegration seems to be accelerating at an alarming rate, with few if any really concrete proposals or action being implemented to arrest it. All of which provokes the question: Has science, the leading light in all our much-vaunted technological progress, somewhere grossly erred?

Had science been in tune with Nature, if scientists had truly understood Nature's inner workings, if science itself operated according to Nature's laws, we ought to have an abundance of everything we need, energy, food, water; but we have not! In actual fact, science has been far less successful than it claims. It has failed to take note of Nature's innumerable hints and indicators as to how things should be done and instead has taken the opposite path. This is not to deprecate the sincere and untiring efforts of many individuals to improve conditions generally.

The recent activity of an international group of concerned scientists from all continents of the globe is proof enough of this. Under the auspices of the World Commission on Environment and Development and the stewardship of Mrs. Gro Harlem Brundtland,

the former Prime Minister of Norway, these scientists contributed their time and combined expertise to a thorough evaluation of the present state of the world, which culminated in the production of a detailed report entitled "Our Common Future"<sup>1</sup>.

The thinking of many other scientists, however, has been coloured by the increasingly mechanistic approach towards life - *Deus ex machina* - which is not to imply that all the established facts of science and the painstaking, dedicated research that has been carried out are invalid, but to suggest that their interpretation could perhaps be different. To date there has been far too much emphasis placed on analysis, the pursuit of minutiae, the development of specialist terminology incomprehensible to other scientific disciplines, let alone the rest of a humanity ever subservient to the dictates of a science that has become the infallible new God.

According to Viktor Schauberger, science thinks an octave too low and, due to its purely materialistic approach, neglecting the underlying energetic basis for all physical manifestation, has lost sight of the integrated whole. Prof. David Suzuki, the eminent biologist, once stated that there were at least twenty branches of biology, each of which had its own jargon, unable to communicate coherently with the others. The individual feels insignificant in the face of all this vast array of scientific expertise, a condition one has noticed among acquaintances, when confronted by the towering edifice of the apparently all-knowing, 'Scientific Establishment'.

Overwhelmed by this indecipherable complexity and in the belief that any understanding was impossible, the public at large has relinquished control over its health and future to the high-priests of science. Viktor Schauburger, however, had other ideas:

The majority believes that everything hard to comprehend must be very profound. This is incorrect. What is hard to understand is what is immature, unclear and often false. The highest wisdom is simple and passes through the brain directly into the heart.<sup>2</sup>

What use, therefore, is all this analysis if ultimately no synthesis results through which all the research can be effectively implemented? There is doubtless an ample sufficiency, nay an oversupply of detail, but what is now of crucial importance to our survival on this planet is that all this vast fund of knowledge should be coordinated and applied practically. Science, however, is by no means solely to blame for this unhappy state of affairs. Politics and power have also played a major, controlling role. The pursuit of profit and power for its own sake, coupled with the necessary systems of control, have relegated the mass of humanity to a state of almost total dependency for everything it needs in the way of food, energy, health and all other necessities of life. The artificial procurement, sometimes aided by climatic fickleness, of shortages in commodities, ensures the continuance of this dependency. According to Viktor Schauburger, "Capital interest only thrives on a defective economy" and there can be little doubt that the economic system resulting from this manipulation is totally unnatural. What there is no shortage of today, however, is misery and privation, two developments which are on the increase worldwide. People despair of improvement and a pall of gloom for the future descends. Not only are parents desperately concerned for the survival of their children, but their children also view their future with enormous despondency.

While millions of our fellow human beings are dying from acute starvation, we are daily aware of the gross, at times incomprehensible, inequities in food distribution; of the 'butter

mountains', 'grain mountains', all of which are the result of market forces open to all manner of manipulation. People are saddled with enormous debt, mortgages, loans, interest payments and so on; to a large extent due to the withholding of all systems that would grant them independence. Indeed there are many cases where significant improvements in energy generation, health treatment and agricultural productivity, to name a few, have been suppressed for the sake of the vested interests of those whose natural humanitarian sensibilities have been corrupted by the lust for power and material gain.

Independence, however, is the last thing these dubious individuals and megabusinesses wish to bestow on humanity, because their ultimate dominance would thereby be lost. Independent people are free people and not answerable to control. The observation of the famous Russian novelist and philosopher, Count Leo Nikolayevich Tolstoy (1828-1910), is here very much to the point:

Thoughts that have important consequences are always simple. All my thinking could be summed up with these words: 'Since corrupt people unite amongst themselves to constitute a force, then honest people must do the same.' It is as simple as that.

At the forefront of this battle is the control over the systems of energy. The present lamentable condition of the planet, our only home in this vast universe, has now reached such a parlous state that for our own survival we simply cannot afford to allow present methods of energy exploitation to continue. Unless we can arrive at a different way of looking at things, unless science is prepared to adopt a more open and universal approach towards the concept of energy itself and realise that there are more powers unseen than seen, then we shall continue down the sombre road to oblivion.

All his life Viktor Schauburger strove to improve the lot of his fellow human beings and fought an often acrimonious, running battle with academia. Despite their continual, uninformed deprecation by science, his trail-breaking ideas have vital relevance for the present state of the world, and their validity

becomes all the more apparent when one gradually comes to understand the processes of his thinking and the energy processes he describes. This book will elaborate Viktor Schauberger's ideas and practical demonstrations for generating energy, improving the quality of water and increasing agricultural productivity for the benefit of humanity.

## 2.2 Relative Energies

Before addressing the question of energy and our concepts of it, however, let us make a few comparisons to get things in perspective. The following examples are intended to show how much the energy consumption of our technical civilisa-

The amount of energy a human being requires for survival over one year is averagely 1,000 kilowatt-hours (kWh). According to Walter Schauberger's calculations a human being operates at the relatively insignificant energy level of an electric light bulb, namely 100 watts. 1,000kWh is also the average amount of energy received from the Sun annually per square metre of ground surface. Theoretically, therefore, all a human being needs to do is to stand on its square metre and obtain its energy from the Sun. Were it able to transmute this energy directly, then its annual energy requirement would be satisfied. This amount of energy, however, is associated with the consumption of 260kg of molecular oxygen ( $O_2$ ) per year, which is equal to 29.659gr of oxygen per hour. These are the amounts of energy and oxygen required by a human being for the maintenance of bodily functions, reproduction, creativity and intelligent thought for a whole year.

The average petrol consumption of a car with a 1.6 lit. engine, however, amounts to between 10–11 lit per 100km. Walter Schauberger has calculated that to travel a distance of 1,000km requires an energy expenditure of 1,000 kWh. Therefore to highlight the ludicrous mechanical efficiency we have so far managed to achieve and of which we are apparently so proud, a car travelling 1,000km destructively consumes the same amount of energy in a few hours that a human being uses far more economically and productively in a whole year. The car, however, does not think, it does not reproduce, nor is it creative. It has none of these abilities. Equating 1,000km travelled with the annual activity of one human being produces a very poor energy relationship.

Once again, the amount of oxygen used per human being per year is 260kg. To drive a car at 50km an hour requires 22.25kg of oxygen per hour, which is roughly 750 times the amount needed by a human being. Therefore as we drive happily along in our cars, we

unknowingly take 750 oxygen-breathing slaves along with us. These slaves, however, do not breathe out nice, healthy carbon-dioxide and water as we do, but they spew out a noxious concoction of poisonous gases.

In a journey lasting eleven hours, all the oxygen required by one human being for one year has been consumed. According to the scientific television program "Quantum" (11 .Oct.89), it has been estimated that there are presently 450 million vehicles in use worldwide. If we multiply this figure by 750, we arrive at an oxygen consumption equal to that of 337,500,000,000 people, about 67.5 x the present world population. We are forced to admit, therefore, that the relationship between our technology and its use of energy is diametrically opposed to that of Nature.

In Australia, for example, the amount of oxygen consumed annually through fossil fuel combustion for the purposes of industry and power generation equals 214,465,670 tonnes of molecular oxygen ( $O_2$ ) [1977 figures]. At a consumption rate of 0.26 tonnes  $O_2$  per annum per person, this is sufficient to keep 824,868,073 people alive for 1 year. In contrast, the amount of oxygen consumed by the Australian population over the same period amounts to 4,290,000 tonnes  $O_2$ , which is 1/50th of the first figure above.

But where does our oxygen originate? Based on Canadian figures for conifer forests, the number of hectares required to produce sufficient oxygen to satisfy the above combined demand at a production rate of 10.0619 tonnes of  $O_2$  per hectare = 21,740,990ha or 217,410km<sup>2</sup>. This area is marginally less than that of the whole of Great Britain = 229,523km<sup>2</sup>. Australia has a population of about 17 million, whereas Great Britain's population amounts to some 60 million odd. Extrapolated world-wide in relation to total world consumption of oxygen and the rapid eradication of the world's forests, the picture becomes quite horrendous.

Fig. 2.1 Energy, Oxygen Consumption and Production

tion is totally out of harmony with that of Nature (see fig. 2.1).

To obtain some inkling of the possible magnitude of global oxygen consumption, for example, and to provoke some interest in the question, I have used the figures in Fig. 2.1 as a basis for calculation<sup>3</sup>. I do not claim any high degree of accuracy, however, because there are so many variables and data involved, which are unknown to me. Be that as it may, according to my calculations the annual demand for oxygen world-wide could be as much as 38,496,255,232 tonnes, which may be an underestimate. To satisfy this demand would require an area of healthy, productive forest amounting to 38,259,432 km<sup>2</sup>. This represents 28.3% of the world's total land area of 135,000,000km<sup>2</sup>, whereas we know the forests are being deci-

imated at a precipitous pace. A higher annual rate of O<sub>2</sub> consumption would naturally require a commensurately larger area of forest for replenishment. On the other hand, it is also possible that the point may have already been reached where existing areas of forest and vegetation are insufficient to compensate for what is presently being consumed, thus creating a nett oxygen deficit.

While it is normally assumed that the available oxygen pool is so large as to be almost inexhaustible (it comprises 20-21% of the atmospheric gases by volume), it could be mooted that, although the relative proportions of these gases remain the same, their actual atmospheric depth may be diminishing. In other words, when initially measured, the abundance of molecular oxygen may have

reached a height of, say, 100km, but due to its rapid and unnatural overconsumption, its overall depth may now have been considerably reduced in a manner similar to the draining of a bucket. For those who live in the water at the bottom of the bucket, however, there would appear to be no change to the quantity of available water (the oxygen), until such time as the bucket is empty! Remaining at all times thoroughly immersed until this catastrophic event, they are oblivious to the slow death that inexorably approaches. It would therefore be of great interest to know whether an accurate audit of the residual oxygen pool has recently been undertaken. If not, then perhaps it should be put in hand as a matter of some urgency.

If we now consider the famous Hasenöhrl-Einstein equation for energy ( $E=mc^2$ ), in which the amount of energy  $E$  in a given system is the product of mass  $m$  times the speed of light  $c$  squared, then in 1 gram of undifferentiated matter 25 million kWh of energy are stored (fig. 2.2). It matters not what the gram of substance is. It could be of human flesh, of carpet, of wood, of whatever we choose, but in this minuscule gram this seemingly huge and disproportionate amount of energy is concentrated. This means that the relatively minute volume of 1 cm<sup>3</sup> of water contains 25 million kWh of energy. As Viktor Schauberger once said:

More energy is encapsulated in every drop of good spring water than an average-sized power station is presently able to produce.<sup>4</sup>

We do not seem to know how to unlock it in a creative way, however, because we have failed

Fig. 2.2 The energy content of 1 gram of matter

Hasenöhrl-Einstein energy equation:	$E = mc^2$
	= mass(kg) x speed(metres/sec) of light <sup>2</sup>
therefore	$E \text{ gram} = m \times c^2$
	= 0.001kg x (2.997 924 58 x 10 <sup>8</sup> ) <sup>2</sup>
	= 0.001 x 8.987 551 787 x 10 <sup>16</sup>
	= 8.987 551 787 x 10 <sup>13</sup>
Mass-energy equivalence of grams vs joules	= 8.987 551 787 x 10 <sup>13</sup> J
Conversion of joules to electron-volts	(eV) = 8.987 551 787x10 <sup>13</sup> J x 6.24 x 10 <sup>18</sup> eV
therefore	$E \text{ gram} = 5.608 232 315 \times 10^{32} \text{eV}$
Converted to Kilowatt Hours (kWh):	$E \text{ gram} = 5.608 232 315 \times 10^{32} \text{eV} \times 4.45 \times 10^{-26} \text{kWh}$
therefore	$E \text{ gram} = 24,956,633.8 \text{kWh}$
In round figures therefore <b>The energy content of 1gram of matter = 25,000,000kWh</b>	



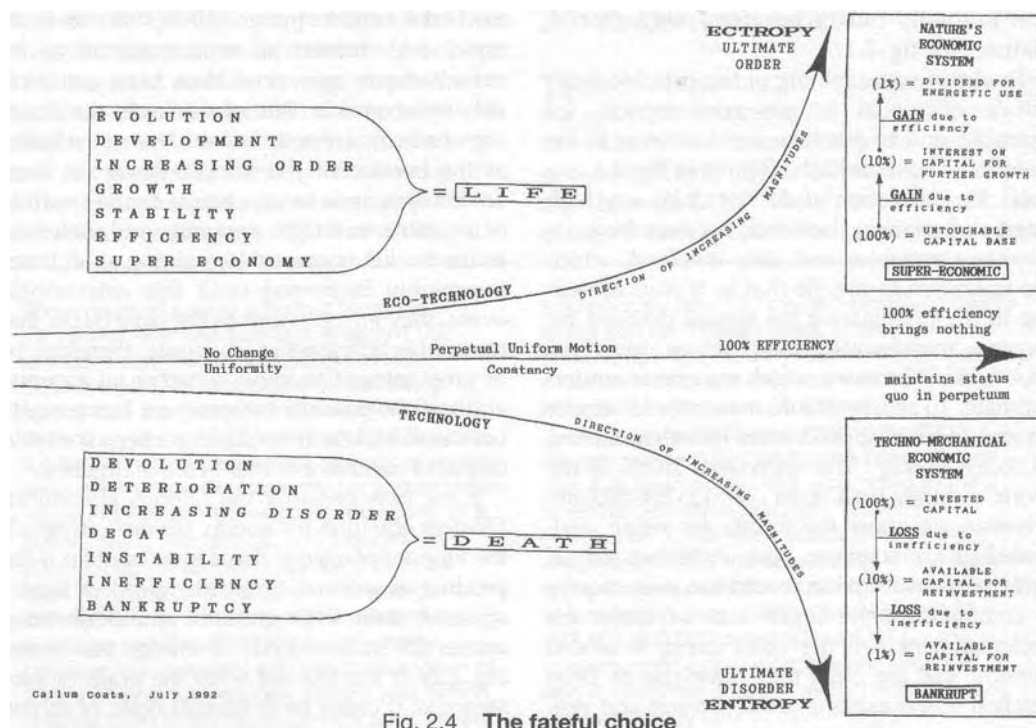


Fig. 2.4 The fateful choice

to make a thorough investigation of natural energetic processes. Our attempts to release this huge potential of energy through atomic fission, through the destruction of natural, resonant systems (atoms), have only created a lethal legacy for future generations, not only for humanity, but also for countless other living things, upon whose existence our own depends.

## 2.3 The Fateful Choice

Two systems are therefore available to us. We are presented today with an extremely fateful choice. We can choose for Life or for our ultimate oblivion. Viewed as evolutionary paths over a long period of time (fig. 2.4), there have been two simultaneous developments, which initially followed almost parallel paths, because humanity's activities were largely in tune with Nature. As the population grew and a scientifically-based technology gradually developed, these two paths began to diverge. In the last 150 years or so, the advance and application of

technology has accelerated enormously, with the result that the divergence has become quite dramatic, and the far more subtle energy systems of Nature have been overwhelmed by the ceaseless onslaught of a merciless, mechanistic technology, with the direst consequences for us all.

The upper, rising path is that of the course of natural evolution from the simple to the increasingly complex, building higher, more evolved systems and species, on the foundation of earlier ones. It denotes a path of increasing diversity. It follows the curve of an increase in natural capital, the interest based on the sound economy of the evolution and development of new life-forms suited to the improved conditions, the latter providing the ecological niches for these new life-forms, so that no opportunity is lost for further creative expression. In Nature's super-economical system, in which nothing is wasted, the surplus on her own interest is represented by the various fruits, seeds, cereals, nuts, etc., freely given for the sustenance of the life-forms currently in existence at any given moment. This is the way Nature

operates and also the way we should operate, for as Viktor has stated:

"The most natural is always the most technically perfect and the only system economically viable long-term.<sup>5</sup>

Nature's 100% base capital - the mineral and other resources of the Earth - should be inviolable. For evolution to proceed, Nature increases her capital by, say 10%, in terms of growth, movement, evolution of new life-forms. We should therefore learn to live off the surplus on Nature's interest on her own capital, which is probably quite ample for our needs. With such a system, stability would increase, because increasing diversity means more legs to stand on, so to speak, and if one leg is accidentally removed, the whole system does not collapse. The natural system is, and has ever been, demonstrably sustainable. The middle line in fig. 2.4 on the other hand, represents 100% efficiency. However apparently ideal this may be, it is still no solution, because it is like going round in a circle. As a uniform condition it never gets more, it never gets less. It just stays the same. Nature, however, has no use for uniformity; her overriding purpose being constant change and upward transformation.

The path we have so far chosen, the lower curve, is one that not only uses energy in an extraordinarily profligate and unsustainable way, but has also placed the whole of the ecosystem under the hard, insensitive heel of economics. Where high forest, rich in a wide variety of interdependent species of tree and animal alike, once flourished, there are now only monocultures, ecological deserts of uniformity. Where hedgerows, burgeoning with wild life, once surrounded highly productive, largely organically managed fields, there are now vast, wind-swept acres in which only one species of crop is grown without rotation, propped up with artificial fertilisers which ultimately ruin the soil. Almost daily we hear that one species or another is in danger of becoming extinct or has already become so, thereby reducing the diversity so vital to the health and existence of everything on this planet.

This is a downwardly accelerating curve, the steepness of descent increasing in step

with the broadening application of our unnatural systems of energy. Quite apart from their manifest inefficiency, the systems we exploit pollute the very air we breathe. A conversation in the 1970s between Walter Schauburger and Dr. Fritz Kortegast, the head of research and development for Mercedes-Benz, revealed that the greatest efficiency hitherto achieved with their most sophisticated engines amounted to only 13% of the total energy input. In other words, if 100 energy-units are initially input into such a car, the useful energy that produces forward propulsion amounts to only 13%, the remainder being lost through the dissipation of heat. If such a car were a business, it would very quickly go bankrupt.

But such is the business we have created, namely a form of technology bolstered and fostered by vested interests that consumes energy through the massive exploitation of unrenewable resources. The continuing use of such a technology must therefore inevitably lead us into a state of instability, bankruptcy, disorder, devolution, deterioration, decay and ultimately death. If we observe all that is taking place around us, all these things are happening, and all because we are actually imprisoned in an energy system which is self-annihilating. In our present mechanistic system, an investment of \$100 is reduced to 13 productive dollars. Reinvested in the same system at 13% efficiency, these \$13 return only 1.69 usable dollars.

But we humans, presumed arrogantly to be the highest level of life on this planet, do everything to destroy the very basis of our existence. If the myriads of different species or qualities, representing every element of life, are viewed as a heap of dry sand, the highest quality in the form of humankind sits right at the top of the heap. However, when lesser qualities are removed from the lower parts, oil extracted here, coal there, deforestation here, overfishing there, then it is inevitable that the relatively few grains of 'human' sand, these extremely soft and vulnerable creatures astride the top, must start to sink down, because the lower grains of sand, the various supportive qualities, are gradually and inexorably being removed. It

is a known fact that poor quality water will only support poor quality fish. The same applies to us. If we allow the natural capital of the environment to depreciate, our own human capital depreciates commensurately.

The use here of the word qualities rather than the apparently more appropriate quantities is important and of great significance. Indeed in the view of Gallilei and Johannes Kepler, Nature could only be conceived of in terms of mathematics and qualities. In Nature no two things are identical. As noted earlier, Nature's supreme condition is that of constant change and transformation and her greatest law states that Repetition of the identical is forbidden.  $1 + 1$  does therefore not make 2, because no two natural systems are wholly identical and thus cannot be summated.

Repetition would mean the repeat of an energetic or experiential process that has already happened, in which no new development, no advance, however slight, is possible. Identical repetition is therefore wasteful of energy, and Nature wastes nothing! In an evolutionary sense, there is quite obviously nothing to be gained from mere repetition. Something can only be gained and progress made in the development of a new process or system, even only marginally different.

Having now discussed some of the more technical aspects, let us look at the question of energy from a different point of view. Viktor Schauberger frequently stated that we humans are blind, that we are extraordinarily superficial creatures who look/but never see. Most of our seeing is concentrated to the point of recognition only, but not on deep examination. Relying on outward appearance alone, everything we observe we deem to be the totality. We mistake effect for cause. Whatever we perceive, however, all movement, all the external garb of manifestation, are secondary effects. The primary cause we never see. The primary cause is energy.

## 2.4 But What is Energy?

**W**hat is the essential nature of energy? Where do we begin to search for the answer to this age-old question? Surprisingly,

despite all scientific investigation, nobody seems to have come up with a definitive answer! All we know of are the ways in which energy manifests itself. We can see that energy is involved in flowing water. We can see that energy is associated with creating clouds. Energy is active in an engine combusting petrol or gasoline. But what is it? What is its essence? What is this sublime process that always seems intimately connected with motion?

An honest physicist would answer, We don't know. We might also ask a bishop or a priest, What is spirit or the substance of spirit? While many propositions may be put forward, in the final analysis they may also be forced to admit their ultimate ignorance. It could be argued, however, that what is called energy by the scientist and spirit by the priest are essentially the same. Its origin, however, remains problematic.

Since we cannot actually see energy, but only its outward manifestation, its origins may well lie in a reality beyond our senses. Perhaps energy is the culmination of a desire to create, to afford every possibility for the gaining of new experience. While there are many extremely high energies of which science is aware and has actually measured, there are also forms of energy of which we are aware, but which defy all scientific quantification and measurement. These are too subtle and cannot be detected by even the most sophisticated scientific instruments.

Although it must recognise their existence, for scientists are also human beings, science cannot accurately measure various human energies such as thought, desire, love, enthusiasm, hatred, anger, etc., all of which are emanations from the human psyche and motivators for action. While science may be able to detect brain activity related to these phenomena, it cannot actually measure their intrinsic power, size, frequency or vibrational state, nor their true point of origin. As immaterial forms of energy emanating from other-placeness - the physical void - which Viktor Schauberger claims operate according to the law of anti-conservation of energy, they are therefore conveniently

ignored. This is because they do not conform to, nor are calculable by the famous Hasenohrl-Einstein equation (fig. 2.1) and its derivation, the law of conservation of energy. As H.H. Price, Wyckham Professor of Logic at Oxford (Hibbert Journal, 1949) comments:

We must conclude, I think, that there is no room for telepathy in a materialistic universe. Telepathy is something which ought not to happen at all, if the materialist theory were true. But it does happen. So there must be something seriously wrong with the materialist theory, however numerous and imposing the normal facts which support it may be.

Goethe too says of scientists: "Whatever you cannot calculate you do not think is real."

To place the matter in its proper perspective, Sir William Grove (1811-1896), Professor of Experimental Philosophy at the London Institution, states: "Science should have neither desires nor prejudices. Truth should be her sole aim." He goes on to predict that "...that day is fast approaching when it will be confessed that the 'forces' we know of are but the phenomenal manifestations of realities we know nothing about, but which were known to the ancients and - by them worshipped."<sup>6</sup>

This neglect of immaterial energies, or life-energies, whose tremendous power has long been recognised by earlier cultures and individuals variously as Ch'i, Ka, Prana, Mana, Archeus, Vis Vitalis, may also be because, as Viktor Schauberger often said, scientific thinking should take more account of higher metaphysical realms and is unaware of what he called the 4th and 5th dimensions. Ch'i, for example, is the life-force that moves along the energetic meridians of the body and which was pinpointed several thousand years ago by the Chinese and used for healing. Acupuncture, a treatment using fine needles to correct bio-energetic imbalances of Ch'i in the body, is still not recognised by orthodox medicine, although widely used in China and in many Western countries by accredited practitioners and more open-minded doctors.

Taking this as our cue in the search for these other dimensions, we might begin with the highest and most powerful form of natural energy experienced by human beings - love. If this is raised several octaves, dimensions and magnitudes higher, we may begin to perceive the outlines of what energy actually may be, namely the outpouring of unconditional love for the purposes of manifold experiential fulfilment.

## Notes

1. Our Common Future: Oxford Univ.Press, Oxford.
2. From list of Viktor Schauberger quotations in the Schauberger archives.
3. ROUGH CALCULATION FOR ORLD ANNUAL CONSUMPTION OF XYGEN (O<sub>2</sub>)

Let us assume that the Australian industrial O<sub>2</sub> consumption of 214,465,670 tonnes is typical for all industrialised countries. Using Australia's population as a basis for the extrapolation of industrial O<sub>2</sub> consumption world-wide, therefore:

Australia's population = 17,000,000  
World population = 5,000,000,000.

$$\frac{5,000,000,000}{17,000,000} = 294.117 \text{ (extrapolation coefficient)}$$

If all the countries of the world were equally industrialised, then by multiplying the Australian figure by the above extrapolation coefficient the amount of world industrial O<sub>2</sub> consumption (100% industrialisation) would be

$$214,465,670 \text{ tonnes O}_2 \times 294.117 = 63,078,137,856 \text{ tonnes O}_2 \text{ annually.}$$

The world is not 100% industrialised, however, so instead we shall take a more realistic figure of 30% industrialisation. The world's annual industrial consumption of O<sub>2</sub> would therefore be

$$30\% \text{ of } 63,078,137,856 \text{ tonnes O}_2 = 18,923,442,176 \text{ tonnes O}_2$$

To this must be added:

The O<sub>2</sub> consumption of 450,000,000 vehicles assuming, an average use of 5 hours per day per vehicle:

$$0.02225 \text{ t/O}_2/\text{hour} \times 5\text{hrs} \times 365 \text{ days} \times 450,000,000 \text{ vehicles} = 18,272,813,056 \text{ tonnes O}_2$$

$$\text{Human O}_2 \text{ consumption} = 0.26 \text{ t/O}_2 \times 5,000,000,000 = 1,300,000,000 \text{ tonnes O}_2$$

This makes an annual total of = 38,496,255,232 tonnes O<sub>2</sub>

Using the Canadian figure for the O<sub>2</sub> production of conifer forest of 10.0619 tonnes/hectare, or 1,00619 tonnes/km<sup>2</sup>, the area of forest required to satisfy the above oxygen demand would be:

$$\frac{38,496,255,232}{1,006.19} = 38,259,432\text{km}^2$$

The total world land area is estimated at 135,000,000km<sup>2</sup>.

Therefore the percentage of total world land

area that would be required to replace the above annual consumption is:

$$\frac{38,259,432\text{km}^2}{135,000,000\text{km}^2} = 28.3\% \text{ wholly devoted to forest.}$$

4. Our Senseless Toil, Pt.I, p.28.
5. From an article by Viktor Schauburger, "The Development of Steppeland in Germany" ("Die Versteppung Deutschlands").
6. The Secret Doctrine, by H.P.Blavatsky, Adyar Ed. 1971, Vol.2, p.234: Theosophical Pub.Ho., Adyar, India.

## NEW DIMENSIONS OF ENERGY

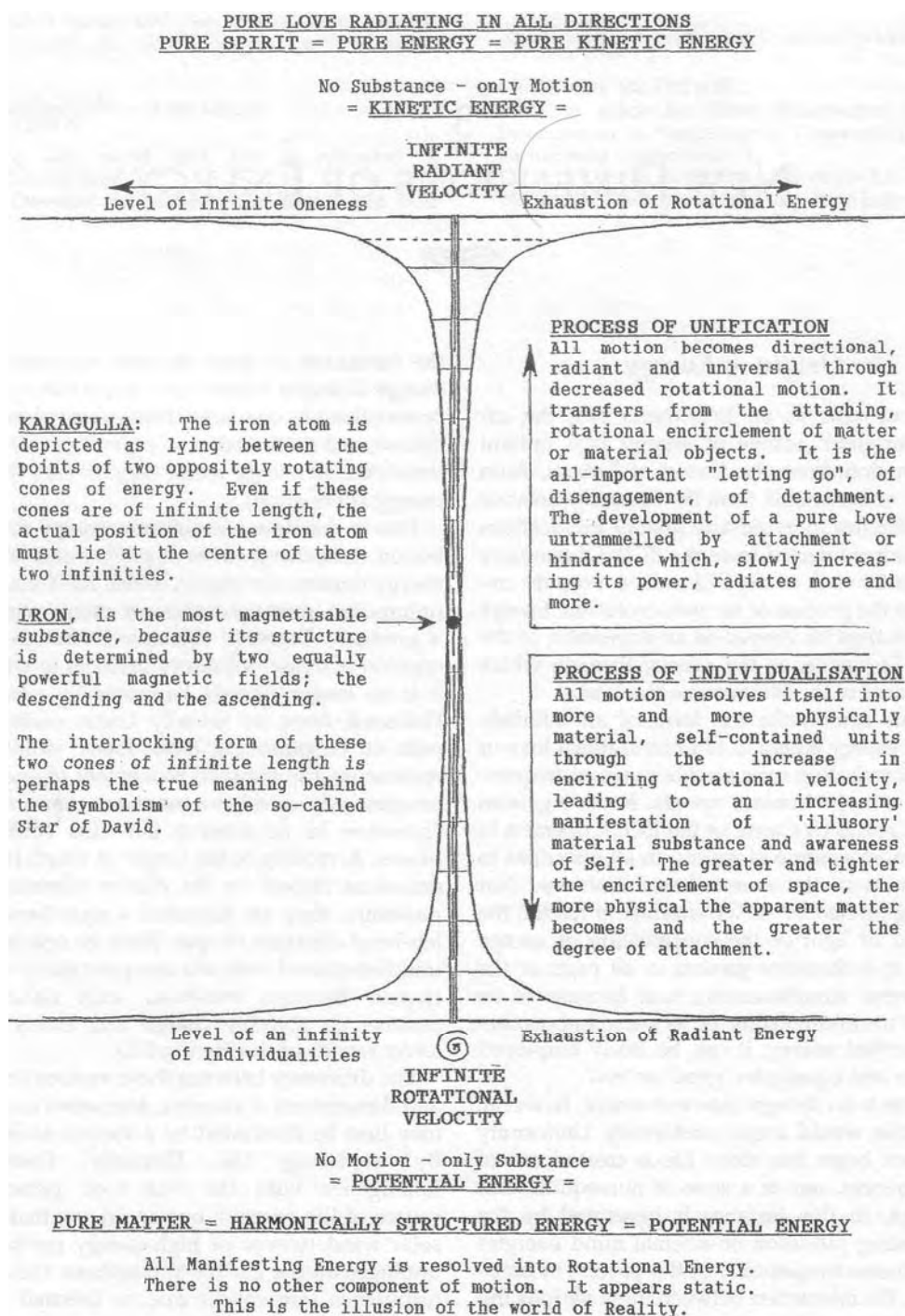
### 3.1 The Origin of Energy

Let us take as an hypothesis that the ur-original<sup>1</sup> source of energy is a radiant emanation from the Cause of Causes, from God, or better still, from the Eternally Creative Intelligence to avoid any gender implications thereafter referred to as the ECI). Of necessity an entity such as the ECI must constantly create on the process of Its own evolution. Energy might then be viewed as an expression of the Will-To-Create, as the agency through which the ideas of the ECI become manifest. This could take the form of an infinitely high-energy emission of unconditional love or spirit pulsating over a wide range of frequencies at hyperluminal speeds. Radiating from the Central Ur-Cause or the ECI, it operates in the most sublime of realms, in all directions to all parts of the unmanifested Universe. Not being limited by the constraints of matter, the speed of light or the conservation of energy law, it is therefore present in all parts of the Universe simultaneously, and because of its total unconditionality or as pure, unpurpose-prescribed energy, it can be freely employed either and equally for 'good' or 'evil'. This is no straight-line movement, however, for this would imply uniformity. Uniformity cannot beget life, since life is created out of differences, out of a state of non-equilibrium which, in this instance is generated by the radiating pulsation of ethereal mind energies at diverse frequencies. In the process of emission, the interaction between these various frequencies produces certain periodicities or cyclical effects. On the one hand this results in

the formation of more densely concentrated energy domains where their respective cycles or wavelengths converge (field energy densification), and on the other, in regions of diffuse, more rarified energy where they diverge (field energy attenuation).

Due to this now non-uniform energy distribution comprising zones of greater and lesser energy density, the way in which the formerly unimpeded, primary outflow of energy moves, it gradually becomes influenced through the creation of denser vibratory matrices to which it is no longer directly harmonically related. Deflected from its initially linear radiating path on encountering these lower vibratory resistances, the outward movement of energy progressively assumes a more curvilinear configuration in its descent into less spiritual planes. According to the 'angle' at which these emissions impact on the denser domains of resistance, they are imparted a right-hand or left-hand direction of spin. From an originally undifferentiated state, the energetic entity thus created becomes endowed with either a positive or negative charge and enters the lower worlds of duality (fig. 3.1).

The difference between these various levels and dimensions of creative, formative energy may best be illustrated by a simple analogy. By replacing the Eternally Creative Intelligence with the Sun (our principal source of life-energy), one could say that the solar wind (waves of high-energy particles) impinges on the Earth's atmosphere, creating turbulence (air-waves) due to thermal and energetic reactions. This represents the first demodulation from a high energetic state to a



motion of lower velocity and intensity. These reactions in turn generate waves of yet lower velocity, but greater physicality, on the surface of the ocean, a denser medium with more harmonically stabilised energy than air. Finally, the ocean waves form nearly static ripples in the sand on the ocean floor.

The whole arrangement not only clearly demonstrates the creative power of higher energies and higher dimensions over lower ones, but also the distinct energetic separations between them in terms of the matter-energy or matter-spirit balance. For the sand-ripple dweller, the fluid movement of the water above it is all it is aware of. The causal dynamics of the air above the water are almost beyond its ken, although it may be dimly aware of this higher state of energy.

As human beings we are immersed in a 3-dimensional world, but yet have an inkling of a possible 4th dimension in the form of time. What spacial magnitude is occupied by a 5th dimension, perhaps the dimension of thought and feeling, is well-nigh inconceivable to us. It may indeed possess none of the familiar 3-dimensional aspects of length, width and depth, but all the same it IS.

Although these various levels of being will be elaborated in more detail in the following chapter, a simple computer graphics programme may perhaps give an insight into

these other dimensions of energy. With it a circle is drawn, whose centre lies about 50cm above the centre of the screen (fig. 3.2). As the sequence progresses, the initial, visible portion of the circle, represented by a series of arrows, is drawn from the bottom centre of the screen towards the right. After a certain period the line of the circle again appears from the left to close with the point from which it began. What is visible is only part of the circle.

In its operation a computer embodies relatively subtle energetic processes. While the visible part of the circle stops at the right-hand side of the screen, the computer continues to draw it, as is proven when the circle finally re-emerges from the left-hand side of the screen a few moments later. Where is the space in which the circle is being drawn when it is not on the screen? This somewhere, this nowhere,

occupies a dimension which perhaps has no size. It has no physical magnitude.

How big is a thought? What is thought? What is an idea and what is the substance of an idea? What is the process which motivates us to do something? We first get an idea, then we develop the concept and then, and only then, are we in a position to fulfill our desire to implement it. Our natural aspiration is to be creative. The force, the impulse, which is the motivator for us to create, is an unseen energetic process.

There are those who believe that the world came into being purely accidentally. There are others who believe it was created by God or the ECI. The truth, however, probably lies somewhere in between and in a certain sense this could be viewed as a reflective process. That is to say that the ECI, imbued with the desire to create, is constantly seeking for new knowledge gained through the experiences of Its multifarious creations in order to create even better universes. As human beings, we could thus be construed as the creative, cellular organisms within the host entity of the ECI, which contribute to Its overall development, although having no inkling of the spaces and higher planes in which the ECI operates. As a corollary of this, there is therefore no absolute truth as such, for

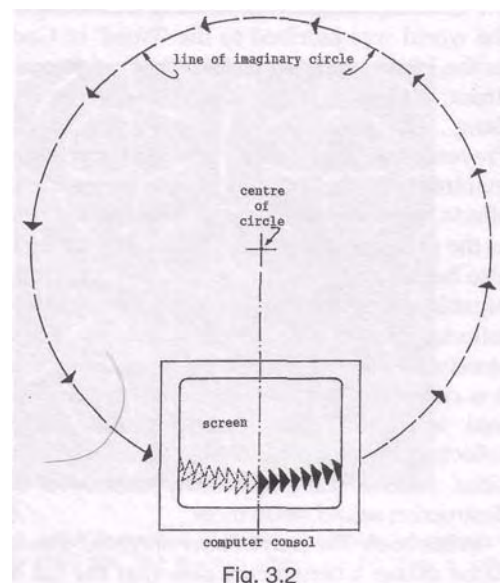


Fig. 3.2



however profound and absolute it may appear to be, such a truth must move and develop as its discoverer, the Eternally Creative Intelligence, Itself evolves.

### 3.2 Sound as a Formative Force

It could therefore be argued that all physical manifestation develops as the product of focused energy emanating from a seed of desire, of Will-to-create. This manifests itself as vibrations carrying the image or the idea of what is to be created and that form and that form only can arise which corresponds faithfully to the idea of the thing itself or, in other words, the particular pattern of vibrations. Fig. 3.3 taken from Hans Jenny's book *Kymatic/ Cymatics*<sup>2</sup>, gives a graphic example of this in relation to the formative force of sound as the source of the idea or information. Here a 0.5mm thick, square metal plate sprinkled with sand is vibrated at a frequency of 7,560 cycles per second. Following the sequence from Plate 1 to Plate 6, the gradual evolution from the unformed to the final form can be traced. This beautiful image is the one directly associated with the formative influence of 7,560cps.

As a form of energy, sound has long been attributed a form-creating capacity, indeed in the Christian religion the coming into being of the world was ascribed to the 'Word' of God; in the Hindu religion to the 'Beat' of Rama's drum; in modern scientific parlance, to the 'Big Bang', all of which are sound phenomena. Prayers, chanting, Indian ragas, the uttering of mantras are believed to produce various effects, some of which are as concrete in form as the photographs in fig. 3.3 show. That sound also has an effect on the quality of a structure, organic or otherwise, is also subconsciously reflected in our own language. We say that a structure is 'sound' or 'unsound', meaning that it is either safe or unsafe. Similarly a person is said to be of 'sound' or 'unsound' mind, reflecting their creative or destructive propensities. Jericho was supposedly destroyed by destructive sound resonances.

In his book *The Secret Power of Music*<sup>3</sup> David Tame makes a convincing case that the fall of

great civilisations was always preceded by the degeneration of popular music, which seems to be about where we are now. In this regard, research carried out by Dr. John Diamond in the field of behavioural kinesiology (BK)<sup>4</sup>, yields some interesting insights. A member of the International Academy of Preventive Medicine, Dr. Diamond found that while the deltoid muscle of a healthy adult male can normally resist a force of 40-45lbs, its strength is reduced to 10-15lbs through the negative effect of certain types of rock music, such as heavy metal and hard rock. In contrast to a more natural rhythm, where the beat emulates that of the heart, with emphasis on the first beat, i.e. DA-da-da or 'LUB dup rest', as he puts it, in the above type of music this emphasis is reversed, i.e. da-da-DA, which conflicts with the body's natural pulsation and in poetry is known as an 'anapestic beat'. As Dr. Diamond states:

...one of the characteristics of the anapestic beat is that it is stopped at the end of each bar or measure. Rock music that has this weakening effect appears to have this stopped quality; it is as if the music stops and then has to start again, and the listener subconsciously 'comes to a halt' at the end of each measure. The anapestic beat is the opposite of the dactylic or waltzlike beat, which is DA-da-da, and in which there is an even flow.

He further asserts that these forms of music and unnatural rhythms cause switching in the brain's responses, which induces 'subtle perceptual difficulties' that may well manifest themselves in children as decreased performance in school, hyperactivity and restlessness; in adults as decreased work output, increased errors, general inefficiency, reduced decision-making capacity on the job, ...in short, the loss of energy for no apparent reason.

Moreover, exposure to such music also appears to create an addiction for more of the same plus a desire for debilitating foods. To this can be added the deleterious effect of the fashion prevalent amongst young people today, when dark glasses are worn both day and night and even on overcast days. As a result, the eye never receives the full spectrum of natural frequencies for which it is designed and which it requires for the health

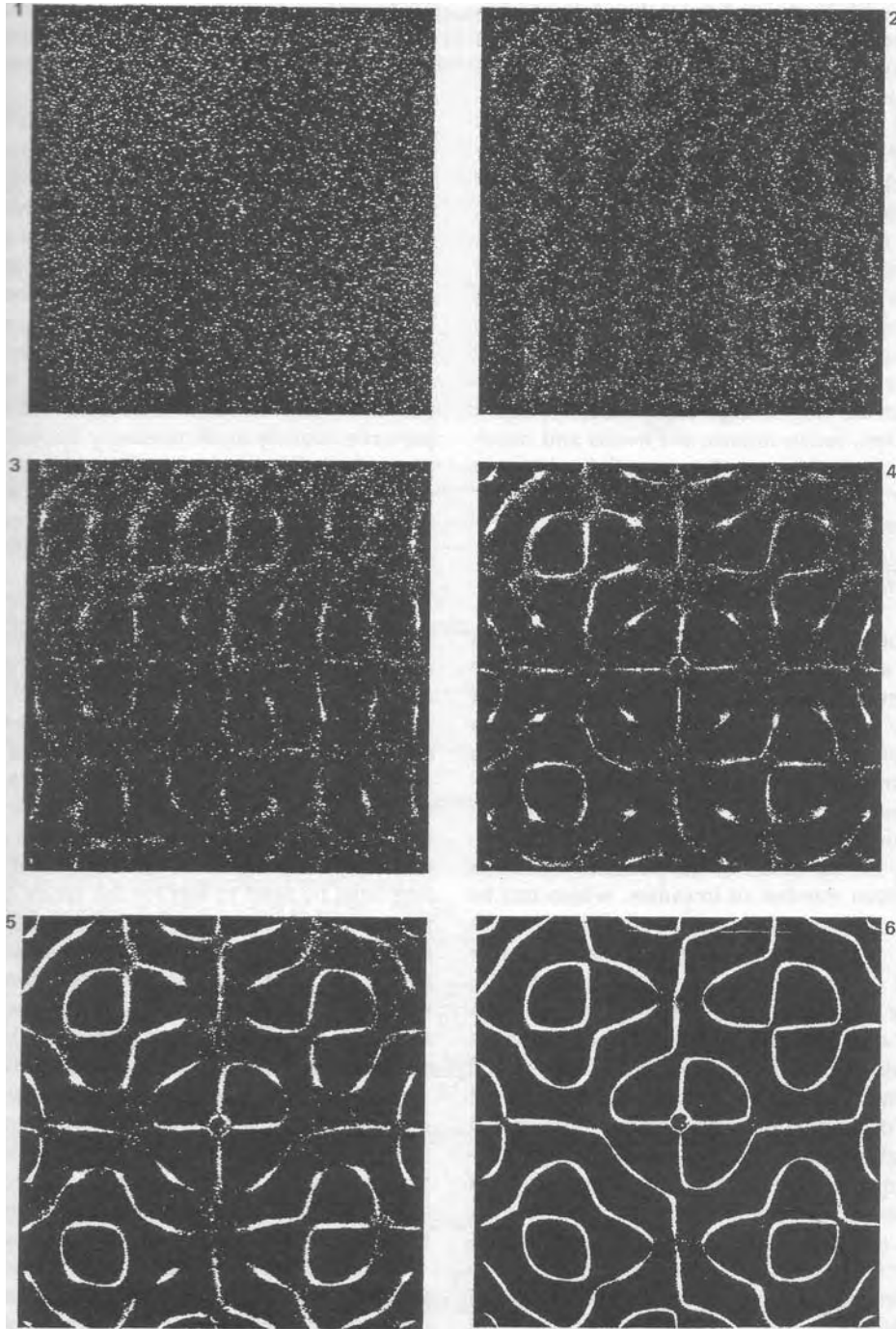


Fig. 3.3.  
The illustrations show a simple sonorous figure taking shape under the action of crystal oscillators (piezoelectric effect). Steel plate 31 x 31 cm. Thickness 0.5mm. Frequency 7560 cps. The material strewn on the plate is sand which has been calcined to purify it.

and stability of those parts of the brain associated with it. Apart from other factors, this may well account for the alarming increase in violence, disease and mental instability. Sunlight as a vital factor in health is discussed in chapter 16 in relation to the findings of Dr. John N. Ott. One of the reasons for this debilitating effect is that each molecule of the body has its own resonant frequency, which can be stimulated, over-stimulated or suppressed by different light frequencies and vibrations (sounds). What long-term effect the ceaseless bombardment of the body's very sensitive, electrically charged cells by the veritable salad of electro-magnetic emissions in the way of high-tension cables, radio, television, radar, microwave ovens and transmitters, etc. has on the overall health is a matter for serious conjecture.

### 3.3 The Phenomenon of Resonance

Sound or resonance therefore does seem to be associated with creative or destructive phenomena. Resonance is the free transfer of energy or the sympathetic vibration between one system and another without loss, and is the function of mutually precisely harmonically related frequencies. As such, it and the phenomena, physical or otherwise, that it produces, are the result of the periodic repetition of a given number of impulses, which can be categorised as vibration, oscillation, or rotational periodicity.<sup>5</sup> In fig. 3.3 the formative effects of resonance in the form of sound are clearly apparent and, in other plates in Hans Jenny's book higher frequencies are shown to give rise to increasingly complex perceptual patterns<sup>6</sup>. From this it follows that the state of order of a given physical structure manifested through resonance is dependent on a particular frequency level or standing-wave pattern of vibrations, higher vibrations producing higher forms and vice versa. Therefore if the intensities of those resonant interactions that furnish the idea and energetic basis for more evolved manifestations of life are lowered artificially or by other means, then the general quality of life-forms degenerates, sometimes reaching the extreme condition of extinction. This is because

the overall level of vibration, which contains the formative patterns explicit to the creature or form of life in question, has demodulated to frequencies too low to support these formerly highly complex structures.

As we survey the world around us today this is precisely what appears to be happening - the quantitative thrust of our technology and ideology is pressing downwards towards uniformity, to a vibrationless state, which is equivalent to zero energy and quality. Thus species after species is disappearing simply because the ambient creative energetic matrix, which has to do with upward evolution, has been rendered inoperative. But while it may appear that all we now have left is all that we can still preserve, namely an increasingly limited spectrum of possible life-forms, all that is needed to reawaken the creative urge of Nature is to raise the level of human spirituality and natural awareness, in order to produce an outflow of positive, creatively potentiated energy.

Higher spirituality is synonymous with a higher level of energy. As this energy is renewed in the human psyche it permeates and enriches the noosphere, the immaterial realms of thought, the abode of the Will-to-create, and the complexity of the creative energetic matrix is raised as a result. New species or those previously extinct may then begin to reappear in physical form as a reflection of this higher creative dynamic. Ultimately we therefore have no need to fear for the future on this planet - that the spectrum of life will constantly diminish - because, as we attune our own harmonic vibrations more and more with those of the ECI, then in the process we will reactivate the evolutionary vibrancies through which all life will be revived and reborn.

Incidentally in regard to resonance per se the number 29 seems to have some strange affinity with the Earth and the planetary system for, in the course of my research I discovered some peculiar coincidences, which are perhaps worthy of note and are set out in fig. 3.4.

To return to the theme in hand: As the will-to-create intensifies, the focus becomes more concentrated, extraneous elements are ejected and a channel is opened to the free passage of creative energy, resulting in an increasing charge (life-force), energetic density and

Pure Coincidence? or The Manifestation of Resonance?			
Speed of light .....	=	<u>299,792.458</u>	km/s
Earth's natural resonant frequency calculated as .....		<u>29.979 245 8</u>	
		<sup>4</sup>	
	=	7.493 1145	cycles/sec
Mean diameter of the Earth' s orbit.....	=	<u>299,195,742</u>	km
Earth's mean orbital velocity .....	=	<u>29.799 328 85</u>	km/s
Orbital velocity of the Earth squared.....	=	(29.799 328 85) <sup>2</sup>	
	=	<u>888</u>	
Length of Lunar or Synodic month .....	=	<u>29.530 59</u>	days
Saturn's orbital period .....	=	<u>29.46</u>	years
The square-root of the Earth's rotational period or sidereal day in seconds, i.e. 86,164.090 55 seconds .....	=	<u>293.537 204 7</u>	
Jupiter's orbital velocity.....	=	<u>29,224.048 97</u>	km/hr
Velocity required to maintain a satellite in orbit .....	=	<u>29,000</u>	km/sec.
Best frequency for communication with other realms .....	=	<u>29</u>	megacycles <sup>(7)</sup>
Dividing the orbital periods of all the planets by 365.26 (Earth's orbital period) and multiplying all the results together gives a value of 19,281,435.35 whose reciprocal value.....			
	=	0.00000000 <u>299</u>	3865136
(Earth's equatorial radius = 6,378.164 km)	<u>6,378.164</u>	=	<u>298.533 302 1</u>
(Earth's polar radius = 6,356.799 km)	<u>21.365</u>		
(6.378 164 – 6.356 799 = 21.365 km)	<u>6,356.799</u>	=	<u>297.533 302 1</u>
	<u>21.365</u>		
Average human consumption of molecular oxygen hour .....	=	<u>29.7</u>	grams
The speed of light can also be calculated as follows, beginning by multiplying the prime numbers – 13 x 23 = <u>299</u>			
	$2^2 \times 10^2 \times 299$	=	119,600
	$(119,600)^2 \times 2\pi$	=	$8.987\ 568\ 794 \times 10^{10}$
	$\sqrt{8.987\ 568\ 794 \times 10^{10}}$	=	<u>299, 792.7416</u> km/sec

Callum Coats, July 1992

Fig. 3.4

**ENERGY IS PRIMARY – THE CAUSE.**

**FORM IS SECONDARY – THE EFFECT.**

Energy creates the form in which it wishes to move.  
The form is therefore the mirror of the energy flow.

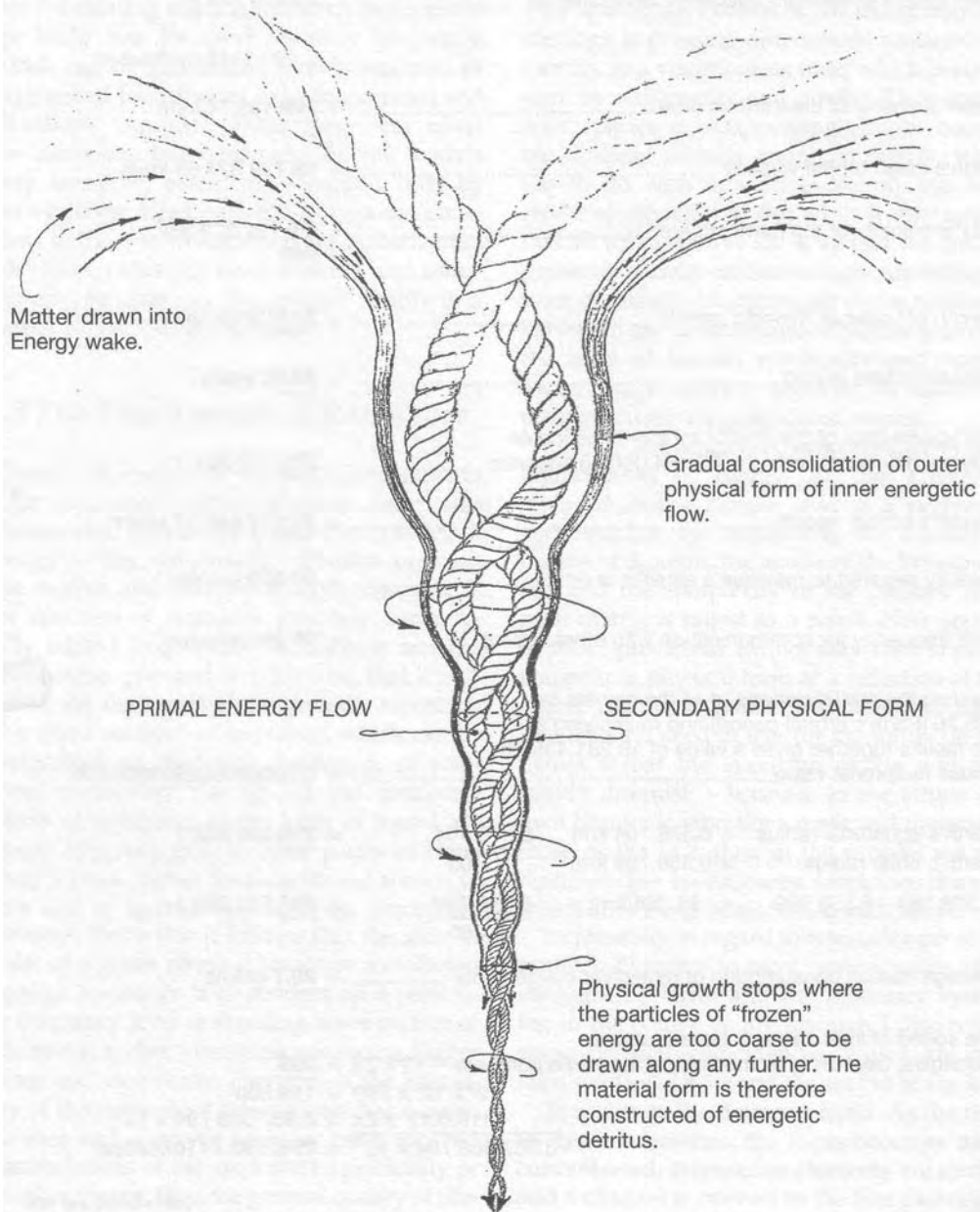


Fig. 3.5 **Energy and Form**

rotational velocity; in other words, a vortex of life-energy evolves, into which more and more and higher qualities of energy are drawn for the generation and development of the form itself (fig. 3.5). Since it is first generated in a particular location or moment in space-time, this vortex bears the imprint of the conditions obtaining at that spot (its reference point in the space-time continuum) and is therefore a totally unique phenomenon with its own individual and characteristic frequency or vibration, or combination of

vibrations. Its inherent stability and eventual physical manifestation is assured as long as its originating idea is unchanged and remains concentrated.

These interacting vibrations must be in harmony with each other and also in resonance with the particular conditions of the place of genesis, so that a given life process or creature can actually grow and evolve. This is the function of the various chakras of the human body, which are represented as flower-like vortices whose stems enter the body at various points, such as the heart, in order to conduct the particular variety of higher energies suited to the enhancement and health of the organ in question.

Harmony and resonance are prerequisites for growth and development; lower stages of harmony in the form of lesser individualities providing the firm and stable substructures upon which the higher structures are built. The ECI is thus everywhere at once, and creates all the various levels of existence through the formation and concentration of life-force into harmonic vortices of matter from Its infinite ocean of energy. That Goethe

was very much aware of this is evident from the following poem<sup>8</sup>:

All things into one are woven, each in each doth act and dwell

As cosmic forces, rising, falling, charging up this golden bell,

With heaven-scented undulations, piercing Earth from power Sublime.

Harmonious all and all resounding, fill they universe and time!

Amidst life's tides in raging motion, I ebb and flood - waft to and fro!

Birth and grave, eternal ocean, ever-moving, transient flow.

A changing, vibrant animation, the very stuff of life is mine,

Thus at the loom of time I sit and weave this living cloth divine.

In Its universe, therefore, there is no energy crisis!

From this it could be construed that it is due the interaction of manifold harmonic vibrations ultimately manifesting into tight radius and extreme rotational velocity that material existence emerges. A good example of this is the spiralling air masses of our weather systems, in which the very large and extended gyrating air-masses have relatively little dense substance, a large radius of action, very little material form and very slow rotational velocities. As they gradually converge, however, their speed and force increases and their radius reduces.

Ultimately they resolve themselves into almost physically palpable energetic entities such as tornadoes and waterspouts, whose core at the base, where the rotational velocity is greatest, is very nearly hard, physical, matter. From being ephemeral, they have become almost tangible. Their upper roots originate in relatively low-density atmospheric conditions, which can be equated with a less structured and more radially dynamic energy-state, since this zone is more exposed to high-energy solar radiation, whereas the base of the tornado penetrates into greater atmospheric densities which are synonymous with more structured, rotational conditions of energy. The effective density of tornadoes is such that their naturally occurring vortexial energies have been known to bend steel railway lines.

Using this as an analogy for the structural development of the atom, which is of course infinitely smaller and has a much higher rate of rotation and vibration, then it becomes clearer how physical matter could come into being through the focusing of energies at one particular point. Therefore in almost nothing is almost everything. Taken to its extreme, it could therefore be said that in nothing is everything; that all manifestation emerges through the 'eye of the needle' as it were, from

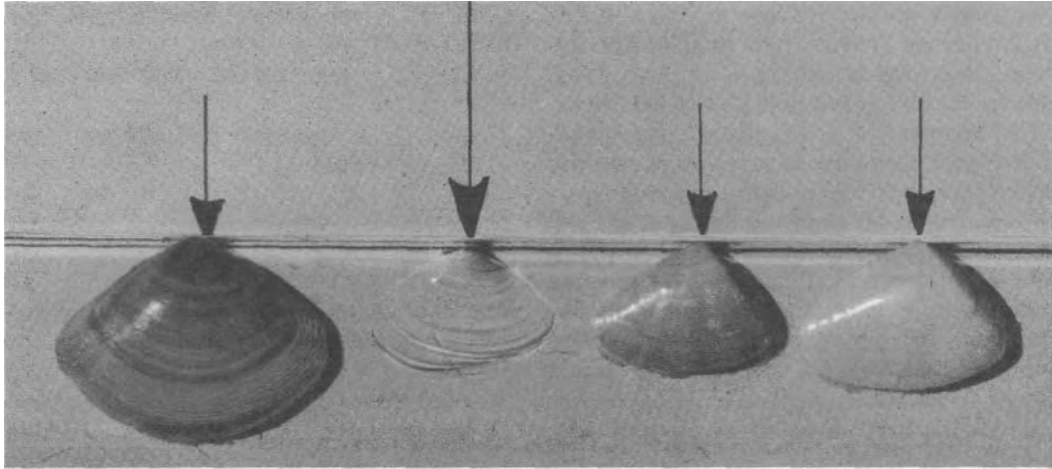


Fig. 3.6 Sea shells: energy focussing at a point.

the high-potency, formless void of the ECI. Our world is thus, indeed, a world of illusion! The sea-shells shown in fig. 3.6 are an example of this focusing of energy, for their gradual growth in size is due to the application of creative energy from and at a point, from the minute ovum in which initial fertilisation took place. On the other hand, the fourth shell-like form indicated by the larger arrow was also created, this time more rapidly, by the application of energy from and at a point, in this case a hammer on the edge of a piece of glass!

### 3.4 The Creative Energy-Vortex

Since we still do not know what energy is and for the purposes of discussion, fig. 3.5 represents a possible energy path. As the energy moves along its desired path, it draws matter into its wake and forms the vessel through which it wants to move. A river does exactly the same thing. The capillaries in our bodies likewise. The blood is the external manifestation of an energy path. What we see is the blood, but we do not see the energy that moves it. The blood is all that matter which is too coarse to be taken to the energy's final destination. Energy therefore creates the form of the path through which it wants to move and along which it can move with the least resistance.

If we desire to build a house, we certainly do not want one in which it is inconvenient to move about. We build it to suit ourselves and our way of living. As has been mooted earlier, all natural systems are evolved as a result of the pattern of energy, or the idea that sought to create them in the first place. All this may reek of metaphysics, but it is difficult to express the notion otherwise.

Once the external form has been created, a point is reached where the matter used to create it is now too coarse to continue along the energetic path and is left behind. Viktor Schauberger often referred to this Earth as a huge dung-heap and said that all the matter, all the living things upon it, were only the fecal matter ejected by the various energies and their forms of movement, because they could not carry the material any further. In other words, whatever energies contribute to an increase in life-force are retained in immaterial form, while the remaining energetic material is expelled as waste, analogous to the daily defecation of human beings. Having been extracted from food, apart from metabolic functions, these often very subtle immaterial energies are used for the production of thought processes. From a certain point of view, the human body could therefore be seen as a hollow energy path, a complex toroidal vortex for the transmutation of matter-energy into physical and intellectual activity.

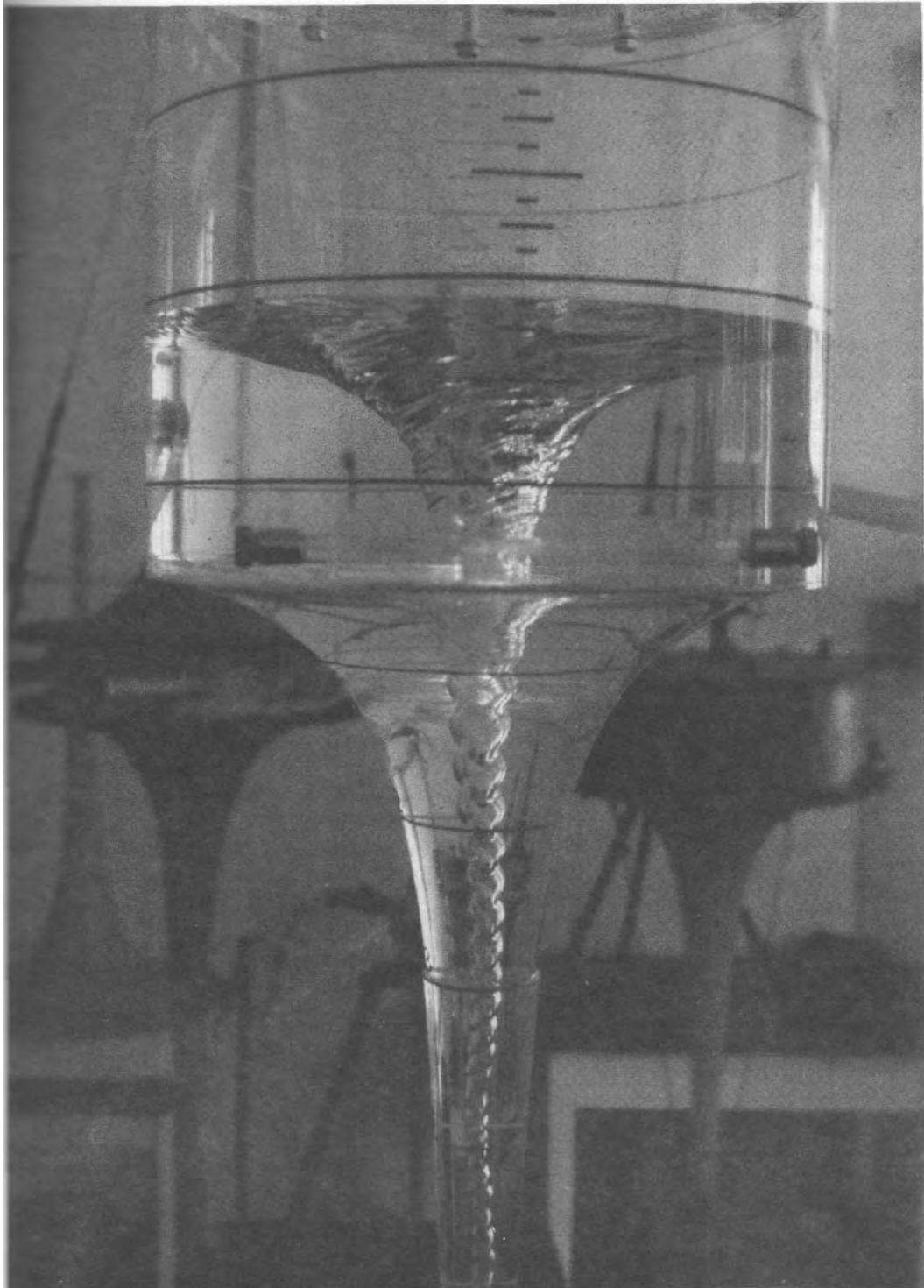


Fig. 3.7 A natural vortex



In line with this view, energy and its movement are unquestionably the primary cause, the prerequisite for physical manifestation. Everything we see around us, the trees, the flowers, all are the outside casing of the formative energy path. According to Viktor Schauberger, while the main body of a tree's energy lies above it, the tree can only grow to a certain height, because the energies are only able to draw up the physical mass of the tree so far in their wake.

Continuing our discussion of the vortical movement of energy, let us observe just how beautiful such a naturally structured vortex is (fig. 3.7). Such phenomena are not often observed. What a marvellous structure! It is not handmade, but it is the path along which water likes to move. Each of these segmental whorls is fractionally smaller than the one above, the mathematics and proportions of which can be explained using the system developed by Walter Schauberger.

Let us briefly examine various illustrations taken from a book, beautifully penned and printed in 1908<sup>9</sup> (figs. 3.8-3.10). In fig. 3.8 the movement of the fish is shown to be undulating and sinuous, and the woman walks with a swinging gait. What should be noticed in particular is that none of these shapes has any connection with the straight line, circle, point or cylinder, or with any of the mechanical systems we presently employ for the generation of energy. Nevertheless, they are all energy paths. They were all created by a movement of energy and express the way that that particular form of energy desired to move in the manifestation of the original or originating idea of the thing itself.

It is now becoming more and more imperative that we understand how energy moves in order to create conditions similar to those achieved with double-helical pipes in the investigation carried out by Professor Franz Popel at the Stuttgart Institute of Hygiene in 1952 on Viktor Schauberger's initiative (see chapter 14 on water supply). It is vital for our survival that whatever methods we adopt in a future technology should always emulate the natural movement of energy and Nature's systems of motion, growth and development. In her systems involving dynamic energetic

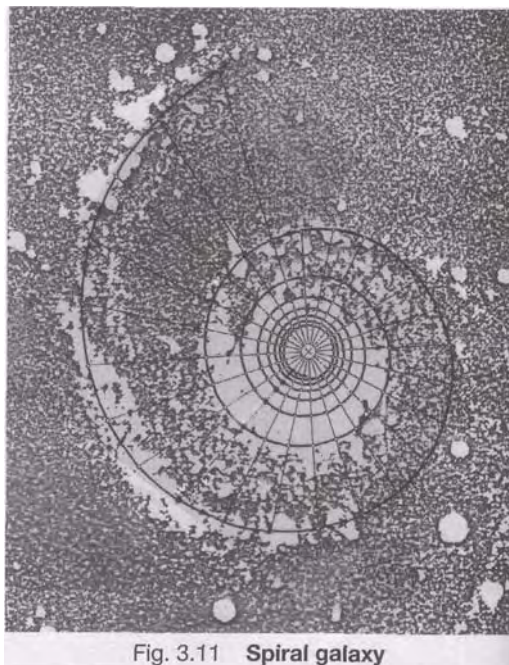


Fig. 3.11 Spiral galaxy

processes, she always appears to select a spiral form of movement and its vortical derivatives, which are represented in both macrocosm (fig. 3.11, a galaxy, in this case overlaid by Walter Schauberger's hyperbolic spiral) and microcosm (DNA molecule - fig. 3.12<sup>10</sup>).

Nature's workings could therefore be described not as 'wheels within wheels', but as 'whorls within whorls'. It is all the more extraordinary, therefore, that despite so much

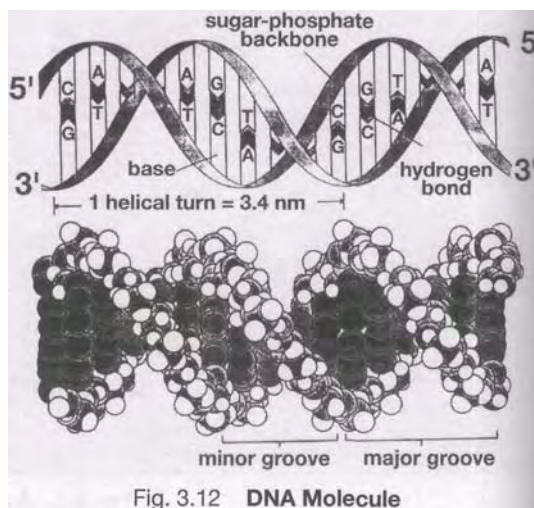


Fig. 3.12 DNA Molecule

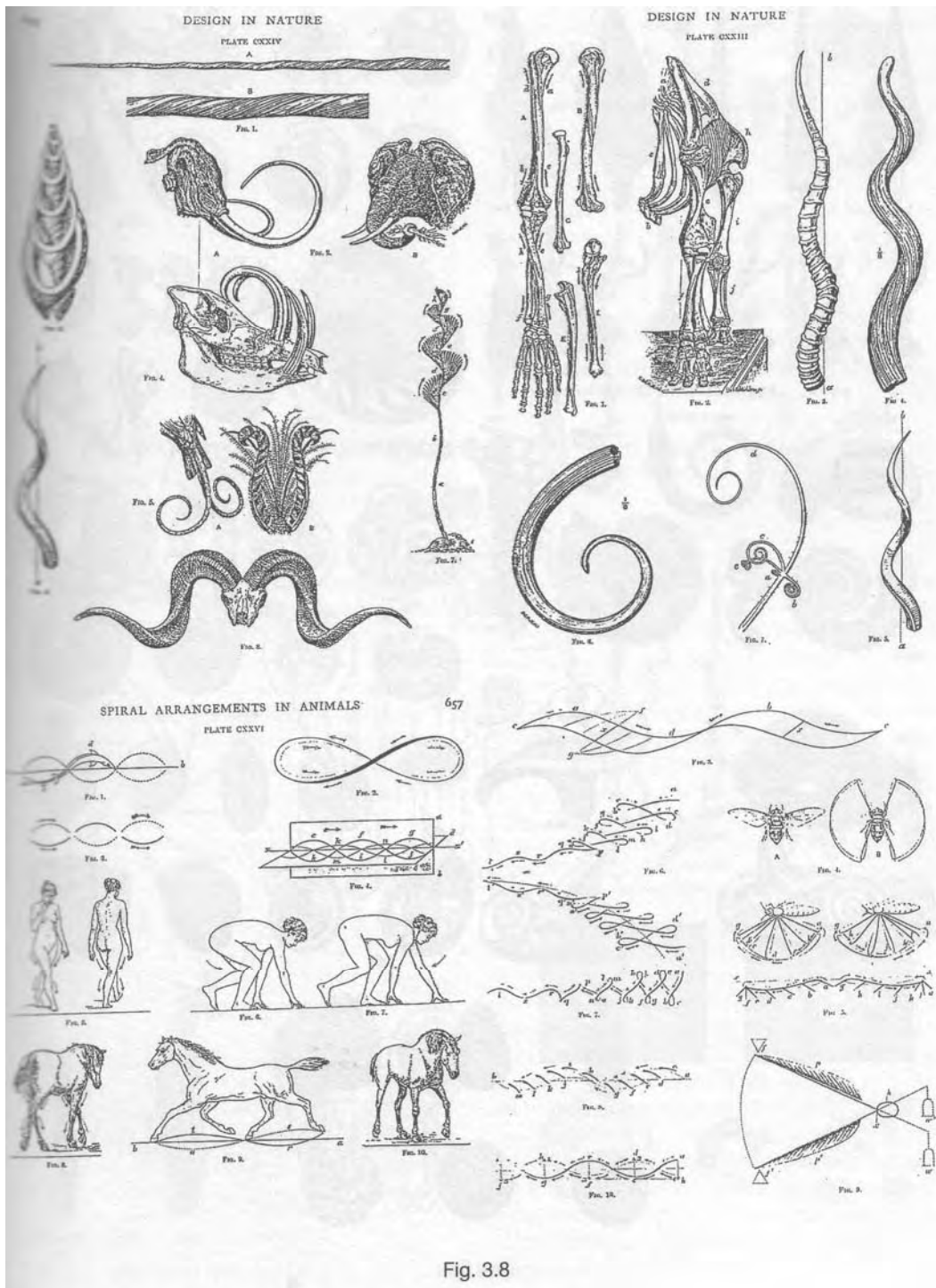
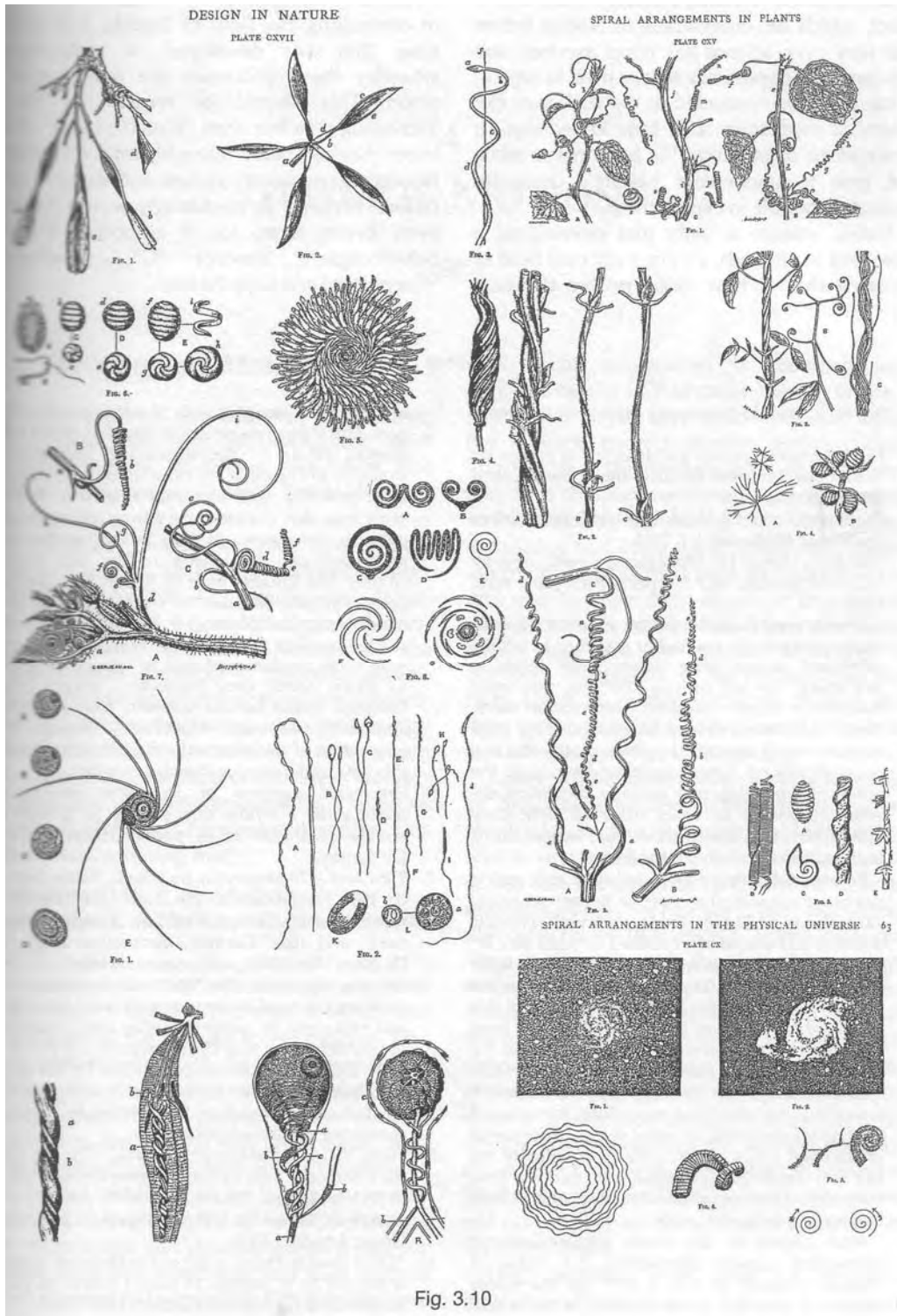


Fig. 3.8



Fig. 3.9



evidence of this vortical, cyclical, helical movement, which lies everywhere in Nature before our very eyes, science has never ascribed any fundamental importance to it or tried to copy it. It has been too immersed in the euclidean elements of mechanics with little knowledge or conceptions of organics. We have never taken the time to understand Nature's dynamics enough to be able to exploit them.

Today, science is only just developing a new (but in all truth, a very, very old) field of research that it now calls 'power fluidics',

which is investigating the vortex as a means of controlling the flow of liquids. It is high time that we developed a technology, whereby these processes are truly understood. This should be termed an 'Eco-Technology' rather than 'Biotechnology', the latter having been brought into disrepute through gene manipulation and experimentation. Perhaps Ec<sup>2</sup>otechnology would be an even better term, for it embodies Viktor Schauburger's concept 'C<sup>2</sup>', signifying 'Comprehend and Copy Nature'.

### Notes

1. See ftn.5, chap.1, concerning the use of the prefix 'ur'.
2. From Kymatik/Cymatics by Hans Jenny, photos by Hans Peter Widmer: Basilius, Basel, Switzerland (now defunct).
3. The Secret Power Of Music by David Tame: Inner Traditions, Rochester, VT, USA.
4. Your Body Doesn't Lie, (Behavioral Kinesiology) by Dr. John Diamond MD: Harper & Row, New York, 1979.
5. Referring once more to Planck's constant whereby energy can only be emitted or absorbed in whole-numbered quanta, since Nature never seems to lack energy for her various functions, they must therefore be closely associated with resonant states. While the present system of manipulating large numbers using scientific notation, i.e. the first five or so significant figures multiplied by 10 to the power of something, may simplify calculation, the establishment of an exact value or periodicity upon which true resonance at high frequencies is founded becomes rather hit and miss.

For example, were a given resonant state giving rise to a particular phenomenon to have an actual value of say 6,622,458,316 Hz, then with scientific notation this would be expressed as  $6.622\ 46 \times 10^9$  Hz. If written out in full, the value of the latter would be 6,622,460,000, slightly higher than the former. Subtracting the original number from this truncated value leaves a deficit of 1,684 Hz from the true state of resonance. If the creation of the above phenomenon was the object of the exercise, then for lack of the missing 1,684 vibrations, it would be impossible to reproduce the original phenomenon exactly. In terms of the achievement of resonant states, in my view it is actually the last few digits that are significant, not the first. With the use of computers, however, this should be a simple matter to rectify.

With regard to the above whole-numbered harmonical aspects themselves, the value of Planck's constant of  $6.62 \times 10^{-34}$ , i.e. the whole number 6 plus the decimal value of 62, would

seem to be at variance with Nature's use of integers. This value was no doubt founded on the calibrated values of the measuring instruments available to Planck at the time. These calibrations were probably quite arbitrary originally in the same way that the standard gauge railway track owes its dimension (4ft 8 1/2in 1.435m) to the distance between the wheels of the first steam engine, 'The Rocket', built by Robert Stephenson. Since Planck's constant is fundamental to the interpretation of physics, it might be extremely rewarding if its present value could be replaced with some fundamental unit or integer value. In so doing some very interesting integer relationships might surface between what are now apparently disparate magnitudes through the conversion of their current values to accord with this new unit value for Planck's constant.

6. Perceptual patterns or structures possessing qualities as a whole that cannot be described merely as a sum of its parts. Collins English Dictionary.
7. The Ghost of 29 Megacycles, by John G. Fuller: Signet ed. 1986, New American Lib., New York. Describes research of Dr. George Meek, an American engineer, and the German electronics engineer, Dr. Hans Otto Konig, into communication with the recently deceased. The optimum frequency for enabling the dead to communicate with the living and vice versa by super-imposing their voices on the carrier wave, was 29 megacycles. On January 15th, 1983 Radio Luxemburg invited Dr Konig to broadcast a live-to-air experiment in such communication, which much to the consternation of all concerned, was largely successful.
8. From Viktor Schauburger's article, "The Ox and the Chamois", pub. by Prof. Werner Zimmermann in TAU magazine, No.146, June 1936, p.30.
9. Design In Nature by J. Bell Pettigrew: Longmans Green, London, 1908.
10. "DNA Double Helix" p.101 of The Molecular Biology of the Cell by B. Alberts, D. Bray, J. Lewis, M. Raff, K. Roberts & J.D. Watson: Garland, New York.



## WHAT IS MOTION?

### 4.1 The 'Original' Motion

If one observes the Universe as a whole, ie. from 'Big Bang' to 'Black Hole', as it were, a form of motion is evident that Viktor Schauburger called "cycloid-spiral-space-curve motion". He also referred to it as

the "original" motion, not only in a primordial sense, but also as a "form-creating" dynamic. Shown in its quintessential, archetypal form in fig. 4.1, which depicts the creation of three successive universes, the 'cycloid-spiral-space-curve' embodies an initial out-breathing, centrifugal, curving expansion of indiscriminating, creative energy (unconditional love) from a point, which results in the generation of countless individualities and energetic systems. In *The Secret Doctrine*<sup>1</sup> Helena P. Blavatsky describes this

phenomenon stating that:

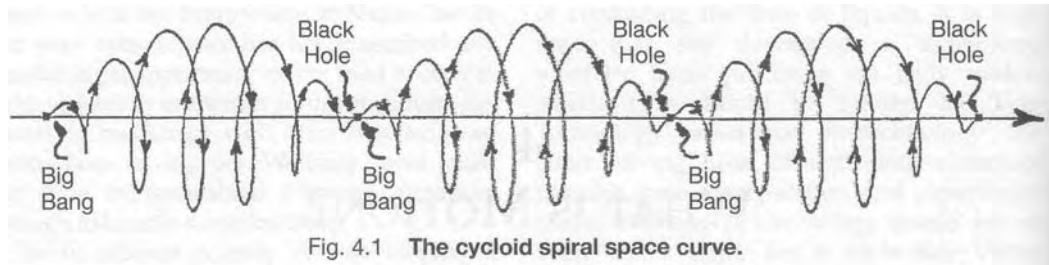
An out-breathing of the 'unknown essence' produces the world and an inhalation causes it to disappear.

Its culmination is an in-breathing, centripetal implosion of the concentrated energies and experience of the created individualities who now seek reunion with their source, the ECI, bringing back with them all the myriad experiences they have gained. Once all has reverted to the ECI via the 'Black Hole', then that universe, or that part of the Universe at the end of the Black Hole, leaves our space-time and enters a highly ethereal continuum, the magnitudes and dimensions of which we cannot conceive. What happens then is open to all manner of speculation. Possibly the new

experiential information is absorbed and digested by the ECI in order then to create a new universe. The very word 'Universe' signifies a single curve (uni=one, versum=curve). The fact that the configuration of this curve may be a complex combination of descending and ascending, involuting and convoluting, expanding and contracting spiral movements does nothing to detract from its uniqueness or unit quality, since from inception to culmination its path is continuous. This curve is an energy-path and the essence of energy is ceaseless movement. In its eternal trajectory from spirit to matter (outward breath) and from matter to spirit (inward breath) it permeates all creation. It is all creation!

Apart from its inherent pulsation, it would be impossible to dissect this eternal movement into discrete segments, for the point at which one portion of this sublime curve ceases and the next begins cannot be defined mathematically, whatever the subjective view. Therefore this unique, primordial, creative curve embodies the unbroken path of evolution, of cyclical, pulsating out-foldment and in-foldment, as it spirals in and out of all the myriads of apparently inextricably interconnected and interdependent individual systems in the cosmos, tying and uniting them all in one inscrutable Gordian Knot. We are therefore unequivocally all part and parcel of the One and any harm of whatever kind we inflict on others or to the planet, we not only inflict on ourselves, but the rest of the cosmos as well.

This creative force and its dynamic have already long been known to Eastern



esotericism and is referred to by Mme. Blavatsky as follows<sup>2</sup>:

Kundalini Shakti: the power or Force which moves in a curved path. It is the Universal life-Principle manifesting everywhere in Nature. This force includes the two great forces of attraction and repulsion. Electricity and magnetism are but manifestations of it. This is the power which brings about that 'continuous adjustment of internal relations to external relations', which is the essence of life according to Herbert Spencer, and that 'continuous adjustment of external relations', which is the basis for the transmigration of souls, punar ianman (re-birth) in the doctrines of the ancient Hindu philosophers.

Even the tools of common language unwittingly (or wittingly) allude to the character of this spiral movement. When we e\-(s)pire, we leave this our 'mortal coil'. When we are inspire-d, we feel drawn to higher ideals. Our spir(e)it is raised and we are sucked into the upward spiral. Similarly through re-spir(e)-ation the ionisation balance of the body, which varies according to the time of day, is adjusted by the proportional ionisation of the air indrawn through the nostrils, which due to opposite directions of rotation, is negatively ionised by the left nostril and positively by the right nostril. Sneezing, therefore, may perhaps be a compensating process, through which high opposing charges resulting from over-ionisation are reduced to zero.

Interestingly enough, while on the subject of the body, the German word for the spinal column, the fundamental supporting structure of the human body, is 'Wirbelsaule', which translated directly into English, means a 'spiral' column. Similarly each one of the

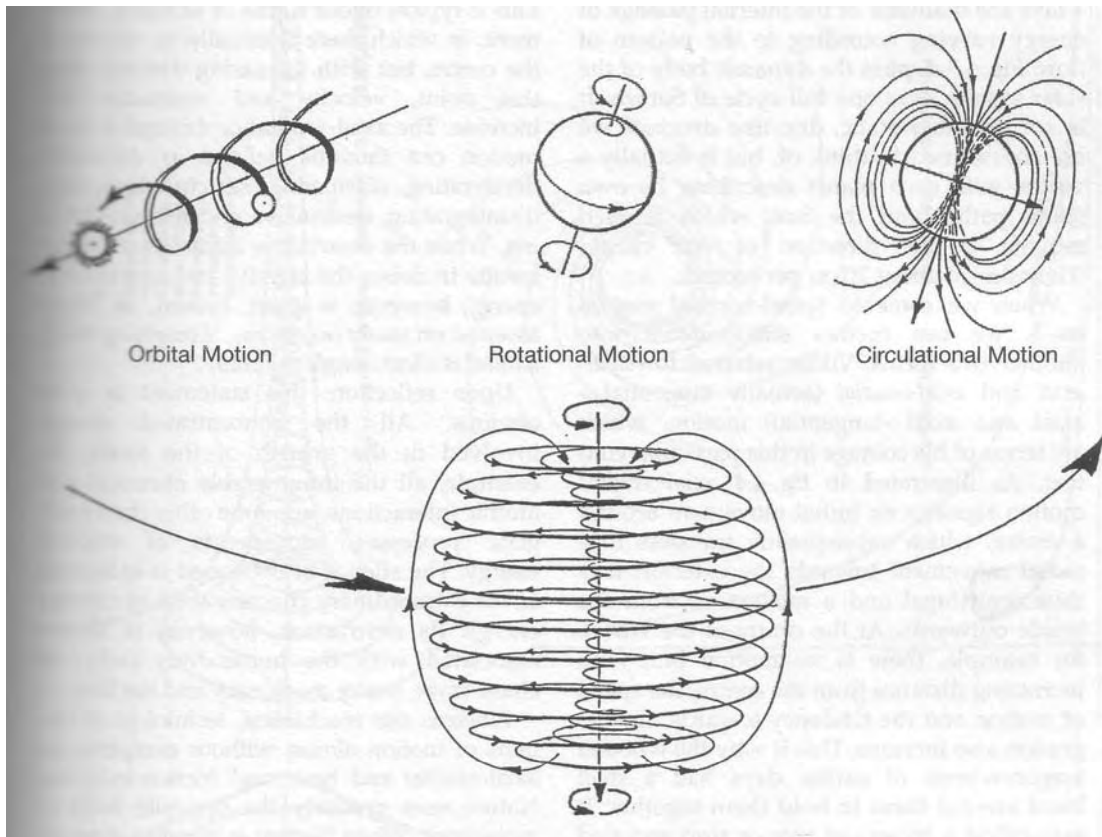
vertebra is referred to as a whirlpool or a vortex. Clearly, the Germans have long had a completely different view of the central structure of our bodies. Whereas we see it as a stiff, more or less rigid, physical structure, they see it more as an energy path. This has obvious associations with the Hindu concept of Kundalini, the name given to the two serpents that dwell at the base of the spine, whose rising energises and spiritualises the various higher chakras (ethereal vortices) of the physical body and whose entwinement on Mercury's staff (the caduceus) empowers him as Messenger of the Gods. Nature too, provides us with countless examples of dynamic spiral growth and movement in the form of galaxies, cyclones, whirlpools and tornadoes, of which we, in our blindness and arrogance, fail to take note in our pursuit of mechanical perfection.

According to the late Dr. Tilman Schauburger, grandson and expert on Viktor Schauburger's works, creative, formative motion is:-

Open, goal-oriented, structured, concentrated, intensifying, condensing, dynamic, self-organising, self-divesting of the less valuable, rhythmical, cyclical, sinuous, pulsating, inrolling, and centripetal = the cycloid-spiral-space-curve.

## 4.2 Forms of Motion

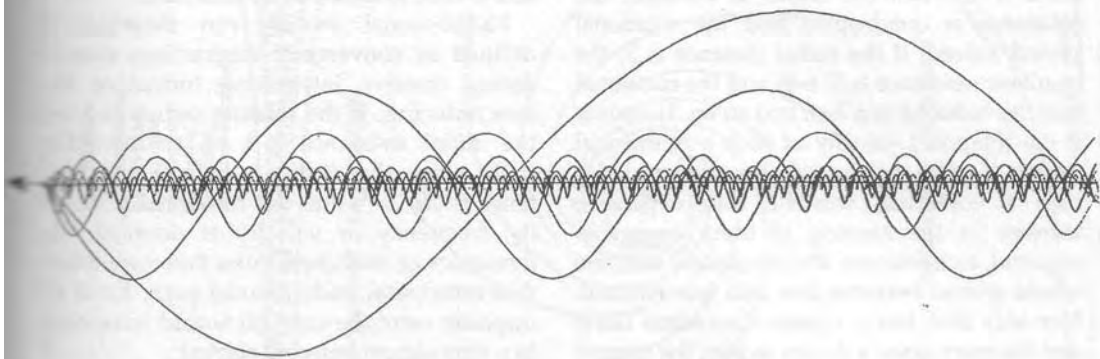
Within this framework there are four fundamental forms of movement: all natural dynamic motion will comprise one or more of four types - orbital, rotational, toroidal and circulatory (fig. 4.2). All of these are combined in the processes of natural movement as illustrated in the bottom image



**Fig. 4.2 Creative, formative motion according to Dr. Tilman Schaubberger.**

The open, goal-oriented, structured, concentrated, intensifying, condensing, dynamic, self-organising, self-divesting of the less valuable, rhythmical (cyclical), sinuous, pulsing, in-rolling, centripetal (and out-rolling centrifugal) movement = The Cycloid Spiral Space-curve.

Natural Motion: Natural motion is quadri-partite and comprised of four components.



**Fig. 4.3 The Planetary Vortex.**

The movements of the inner planets viewed over a period of one full Saturn cycle of 29.46 years.



- here the diameter of the internal passage of energy varying according to the pattern of flow. Fig. 4.3 depicts the dynamic body of the solar system over one full cycle of Saturn. It is not the fairly static, disc-like structure we are accustomed to think of, but is actually a vortex with each planet describing its own spiral path about the Sun, which is itself moving in the direction of star cluster 'Hercules' at about 20km per second.

When we come to spiral-vortical motion itself, we can further subdivide it into another two forms. Viktor referred to radial-axial and axial->radial (actually tangential->axial and axial->tangential) motion, which are terms of his coinage in this particular context. As illustrated in fig. 4.4 axial->radial motion signifies an initial movement around a centre, which subsequently transfers to a radial movement towards the exterior; it is thus centrifugal and a movement from the inside outwards. At the centre of the wheel, for example, there is no motion but, with increasing distance from the centre, the speed of motion and the tendency towards disintegration also increase. This is why the wooden wagon-wheels of earlier days had a steel band around them to hold them together. It was called a 'tie-er' (= tyre or tire) and tied the wheel together.

In Viktor's theories, also proven practically, with this form of movement the resistance to motion increases by the square of the starting velocity. In other words, if the radial distance from the centre of rotation is 1 and the resistance is 1, when the radius is doubled, the resistance is quadrupled and the rotational period halved. If the radial distance is 3, the resultant resistance is  $3^2 (=9)$  and the rotational velocity reduced to a 1/3rd, and so on. However if the rotational velocity of such a centrifugal system is to be maintained at a constant level, then a continual, wasteful and expensive increase in the amount of input energy is required to overcome the resistance, and the whole system becomes less and less efficient. Not only this, but it creates discordant noise and the more noise a device makes, the more it operates against the laws of Nature.

The dispersion of energy, therefore, is associated with noise or heat, as the case may be.

This is typical of our forms of technical movement, in which there is initially no motion at the centre, but with increasing distance from this point, velocity and resistance also increase. The axial->radial centrifugal form of motion can thus be defined as divergent, decelerating, dissipating, structure-loosening, disintegrating, destructive and friction-inducing. While the destructive diffusion of energy results in noise, the creative concentration of energy, however, is silent. Indeed, as Viktor asserted on many occasions, "Everything that is natural is silent, simple and cheap."<sup>3</sup>

Upon reflection, this statement is quite obvious. All the concentrated energy involved in the growth of the forest, for example, all the innumerable chemical and atomic interactions, are none other than energetic processes, movements of creative energy. The silence of the forest is indicative of the extraordinary concentration of creative energy. Its destruction, however, is always associated with the horrendous racket of chain-saws, heavy machinery and the like.

Whereas our mechanical, technological systems of motion almost without exception are axial->radial and heat- and friction-inducing, Nature uses precisely the opposite form of movement. When Nature is moving dynamically, the slowest movement occurs at the periphery and the fastest at the centre. One only has to observe the dynamics of a cyclone or a tornado. Her form of movement, therefore, is centripetal or radial->axial, moving from the outside inwards with increasing velocity, which acts to cool, to condense, to structure.

Radial->axial motion can therefore be defined as convergent, contracting, consolidating, creative, integrating, formative, friction reducing. If the starting radius is 1 and the initial resistance is 1 on an inwinding path, when the radius is halved, the resistance is  $(1/2)^2 = 1/4$  and the rotational periodicity, frequency or velocity is doubled. The dynamics of evolution must therefore follow this centripetal, radial->axial path, for if the opposite were the case, all would have come to a stop almost before it started.

Force is the application of energy to do work. The magnitude of a force  $F$  is the product of a mass  $m$  times acceleration  $a$  ( $F=ma$ ).

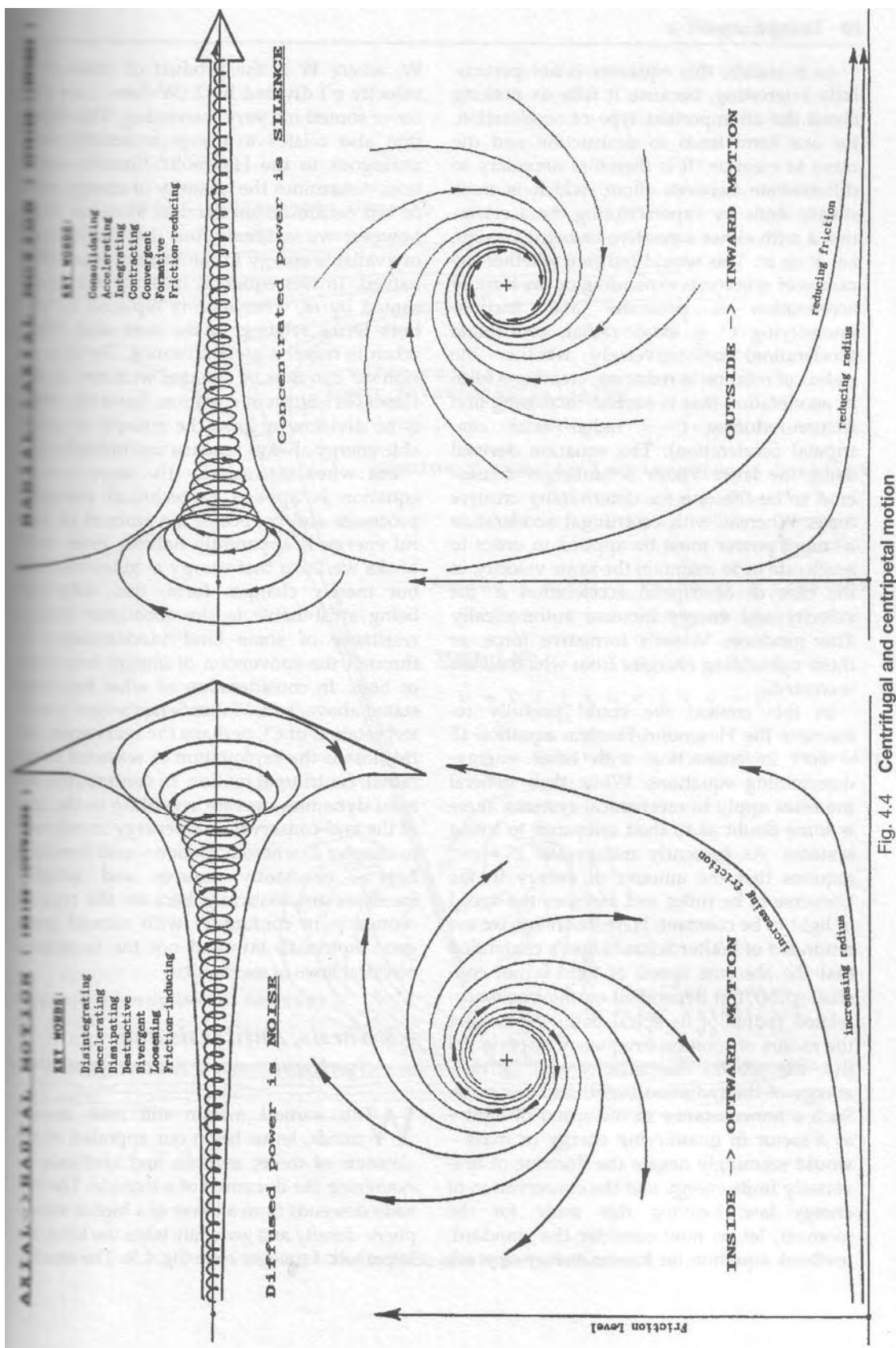


Fig. 4.4 Centrifugal and centripetal motion

As it stands, this equation is not particularly interesting, because it tells us nothing about the all-important type of acceleration, for one form leads to destruction and the other to creation. It is therefore necessary to differentiate between them, which is most simply done by superscripting the acceleration  $a$  with either a positive or negative sign, i.e.  $a+$  or  $a-$ . This would indicate whether the radius of rotation is expanding or the form of acceleration is pressure- and friction-intensifying ( $+$  = axial->radial, centrifugal acceleration) or conversely whether the radius of rotation is reducing, creating a form of acceleration that is suction-increasing and friction-reducing ( $-$  = radial-> axial, centripetal acceleration). The equation derived using the latter Viktor Schauburger considered to be the one for determining creative force. Whereas with centrifugal acceleration  $a+$  more power must be applied in order to accelerate or to maintain the same velocity, in the case of centripetal acceleration  $a-$  the velocity and energy increase automatically. This produces Viktor's formative force, or those upbuilding energies from which all life is created.

In this context we could usefully re-examine the Hasenohrl-Einstein equation ( $E = mc^2$ ) in connection with other energy-determining equations. While their general premises apply to mechanical systems, there is some doubt as to their relevance to living systems. As presently interpreted  $E = mc^2$  requires that the amount of energy in the Universe to be finite and assumes the speed of light to be constant. Here, however, we are reminded of Walter Schauburger's contention that the absolute speed of light is not constant (p.24), but dependent on the frequency-related radius of its spiral path; the smaller the radius of rotation (frequency of periodicity), the greater the velocity and intrinsic energy of the radiation (light) and vice versa. Such a nonconstancy in the speed of light - as a factor in quantifying energy or mass - would seemingly negate the doctrine of universally finite energy and the conservation of energy law. Leaving this aside for the moment, let us now consider the standard, textbook equation for kinetic energy or work

$W$ , where  $W$  is the product of (mass  $m$  x velocity  $v^2$ ) divided by 2 ( $W=1/2*mv^2$ ), we discover something very interesting. This equation also relates to energetic activity and, analogous to the Hasenohrl-Einstein equation, determines the quantity of energy used in our technical, mechanical systems. Here however we suddenly find that the amount of available energy in the form of work  $W$  is halved. In this equation mass is still represented by  $m$ , whereas  $c$  is replaced by  $v$  - both terms relating to the time and speed taken to travel a given distance. The expression  $mc^2$  can thus be equated with  $mv^2$ . In the Hasenohrl-Einstein equation, however, there is no division by 2, so the amount of available energy always remains undiminished.

But when intrinsically the same energy equation is applied to technical energetic processes and purposes, the amount of useful energy is apparently halved. From textbooks we learn that energy is indestructible, but merely changes form, this reduction being attributable to the encounter with a resistance of some kind (deceleration) or through the conversion of energy into heat, or both. In consideration of what has been stated above, and, Walter Schauburger's reinterpretation of  $C^2$ , perhaps the real reason for this loss is the exploitation of wasteful axial-radial, centrifugal motion. In contrast, radial-axial dynamics operate according to the law of the anti-conservation of energy mentioned in chapter 1, wherein friction - and therefore heat - constantly reduces and velocity increases automatically, because the type of motion is in conformity with natural energetic (spiritual) law and not the mundane, physical laws of mechanics.

### 4.3 Thesis, Antithesis and Synthesis

With vortical motion still fresh in our minds, let us begin our appraisal of the elements of thesis, antithesis and synthesis by examining the dynamics of a tornado. The tornado descends from a lower to a higher atmospheric density and generally takes the form of a hyperbolic funnel or cone (fig. 4.5). The smaller

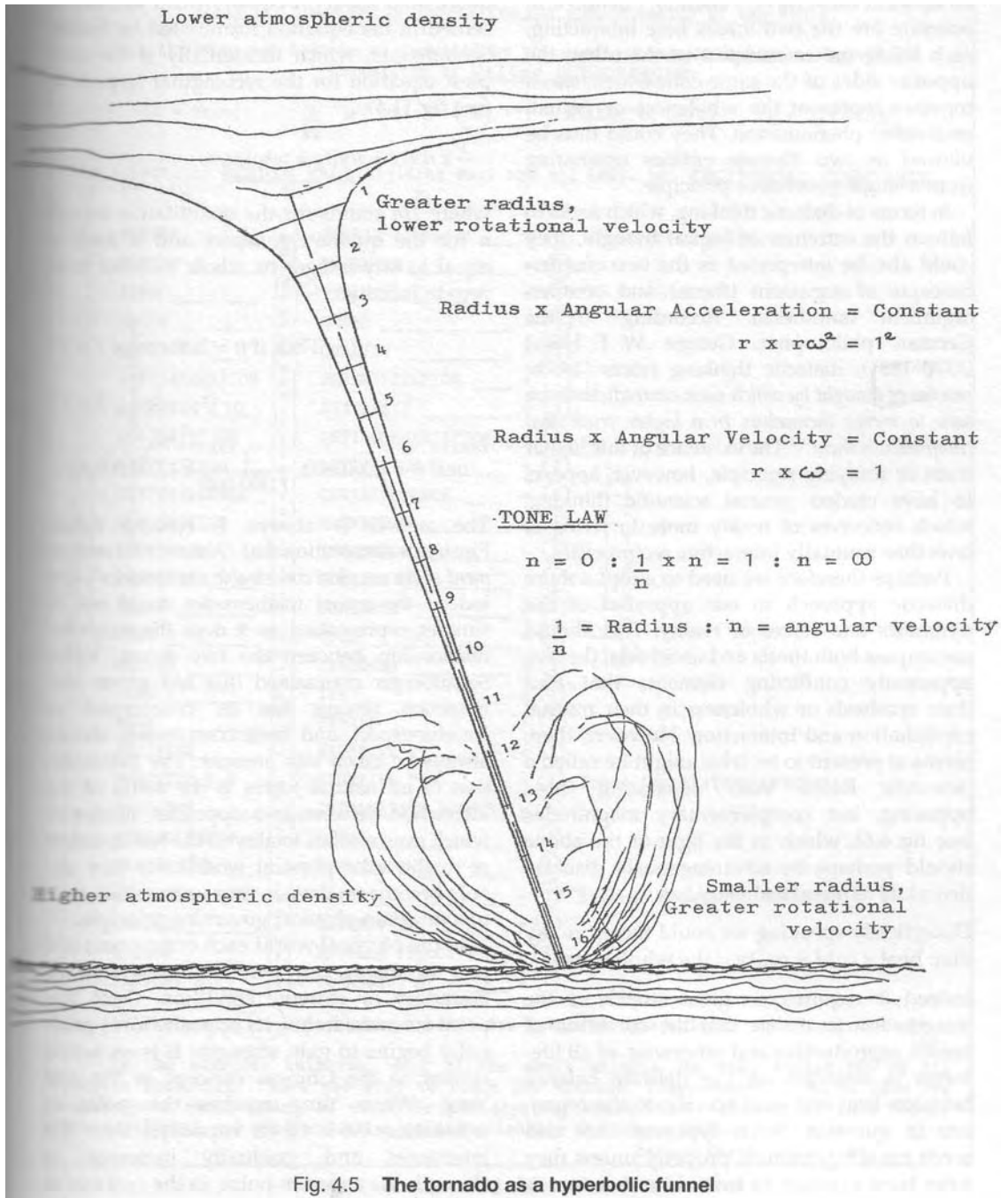


Fig. 4.5 The tornado as a hyperbolic funnel

the radius, the higher the rotational velocity. It is another example of how Nature moves from the outside inwards in terms of increasing energetic effect and of generating power. In the eye of the tornado or a cyclone, there is an upward movement - suction. Suction and pressure are the two forces here interacting, each being the counterpart of the other, the opposite sides of the same coin which, taken together represent the wholeness or united, undivided phenomenon. They could thus be viewed as two discrete entities emanating from a single generative principle.

In terms of dialectic thinking, which seeks to fathom the extremes of logical thought, they could also be interpreted as the two counter-concepts of argument (thesis) and counter-argument (antithesis). According to the German philosopher, George W. F. Hegel (1770-1831), dialectic thinking refers "to the process of thought by which such contradictions are seen to merge themselves in a higher truth that comprehends them".<sup>4</sup> The existence of this higher truth or unifying principle, however, appears to have eluded general scientific thinking, which conceives of reality more in terms of laws than mutually interactive reciprocities.

Perhaps therefore we need to adopt a more dialectic approach to our appraisal of the dynamics and forces of reality. This should encompass both thesis and antithesis, the two apparently conflicting elements that find their synthesis or wholeness in their mutual combination and interaction. However, there seems at present to be what might be called a 'scientific Berlin Wall' separating these opposing, but complementary magnitudes (see fig. 4.6), which in the light of the above should perhaps be advantageously dismantled as its namesake already has.

Dialectically speaking we could therefore say that: heat x cold = unity = the wholeness.

Indeed it requires no great stretch of the imagination to realise that the condition of health, reproductive and otherwise, of all life-forms is founded on the delicate balance between heat and cold specific to the organism in question. Some types of fruit and seeds cannot germinate properly unless they have been exposed to frost. Life therefore is

not merely a question of heat, but also of its inseparable counterpart - cold.

Fig. 4.6 lists a few examples of such reciprocities, in which, generally speaking, thesis is the quantifiable aspect and antithesis the qualifiable aspect, both of which are represented in the equation formulated by Walter Schauberger, which incidentally is the simplest equation for the rectangular hyperbola (see fig. 11.4):

$$\frac{1}{n} \times n = 1 = \text{unity} = \text{wholeness}$$

where  $1/n$  stands for the quantitative aspect,  $n$  for the qualitative aspect and  $n$  itself is equal to any integer or whole number from zero to infinity.

$$\begin{aligned} \text{Thus if } n = 2, \text{ then } \frac{1}{2} \times 2 &= 1 \\ \text{or if } n = 3: \frac{1}{3} \times 3 &= 1 \\ \text{or if } n = 1,000,000: \frac{1}{1,000,000} \times 1,000,000 &= 1 \end{aligned}$$

The answer is always 1, echoing Albert Einstein's observation that "Nature is the embodiment of the simplest conceivable mathematics", and indeed the actual mathematics could not be simpler, representing as it does the reciprocal relationship between the two terms. Viktor Schauberger maintained that any given phenomenon always has its counterpart or counter-aspect, and both components should always be taken into account. The manifestation of all natural forces is the result of the interaction between two opposites, neither of which ever reaches totality in the lower realms of duality (the physical world), for they can only become total when they unite within their unifying, non-physical, governing principle.

In the physical world each component of a pair of forces can only attain 96% of its boundary or extreme condition. Once this point is reached, then its opposite force gradually begins to gain strength. It is an action similar to the Chinese concept of Yin and Yang. When Yang reaches the point of exhaustion (96% of its capacity), then Yin intervenes and gradually increases in strength. As a case in point, in the creation of

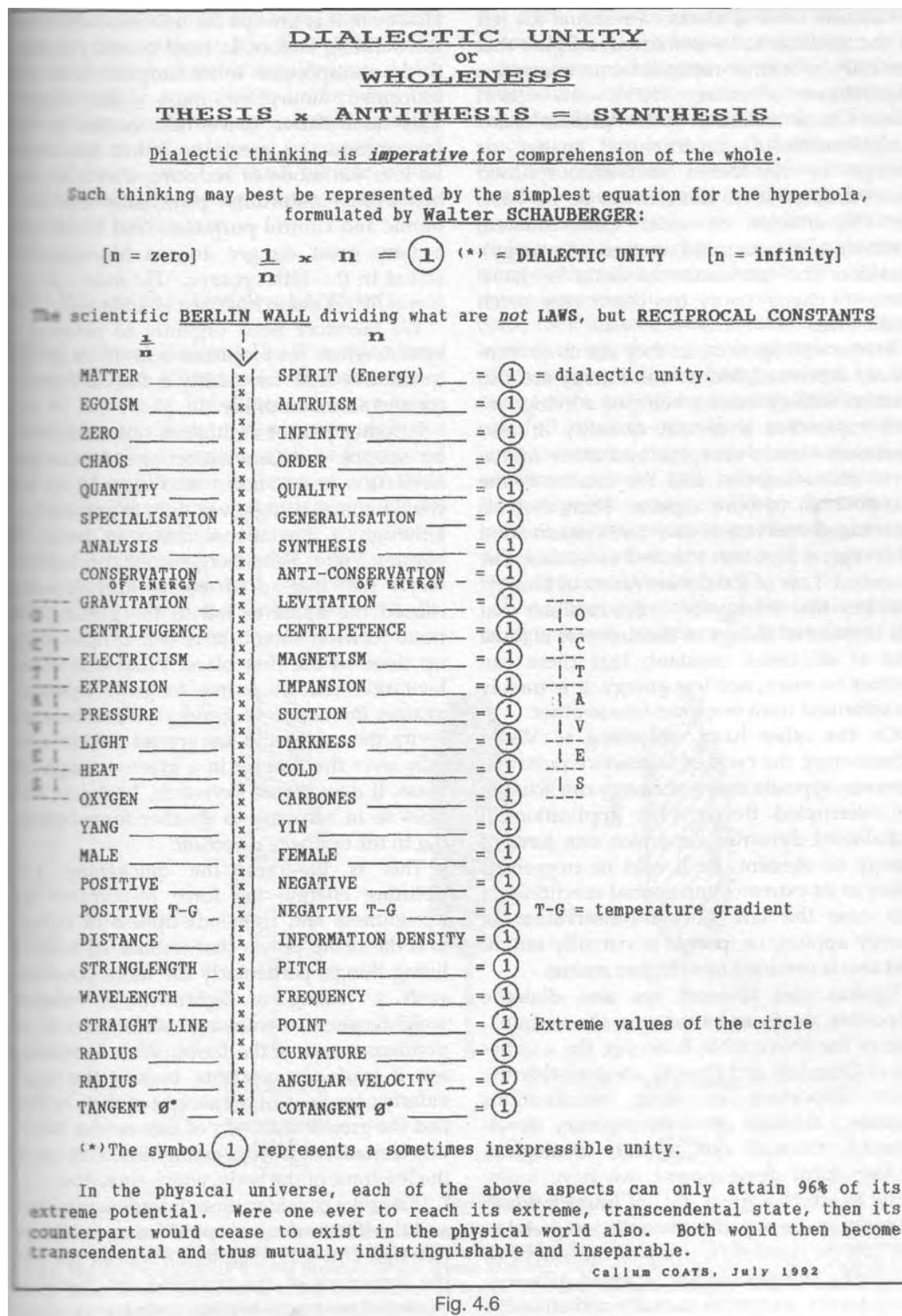


Fig. 4.6

a vacuum, there is always a residual 4% left of the medium to be evacuated, a figure that can only be further reduced by an enormous expenditure of energy;  $100\% - 4\% = 96\%$ ! Thus  $\text{Chaos} \times \text{Order} = 1$ . Without chaos (undifferentiated, unstructured matter or energy, or unordered, unmetamorphosed unconditional love) there could be no basis for the creation of order (differentiated, harmonically-structured matter or energy); therefore the foundation of order is chaos. Recently chaos theory has come very much to the fore.

Matter and Spirit or, as they are more commonly expressed, Matter and Energy are also a unity. While a human being or a living system represents a certain quantity, it also possesses certain energetic and other immaterial characteristics, and the totality is the combination of both aspects. Then there is also the conservation and anti-conservation of energy, which was touched on earlier. The so-called 'Law of the Conservation of Energy' requires that energy be indestructible; that the amount of energy in the universe is finite and at all times constant; that there can neither be more, nor less energy. It is merely transformed from one form into another.

On the other hand, according to Viktor Schauberger, the cycle of interactive pulsation between opposite forms of energy can actually be interrupted through the application of radial-axial dynamics, in which one form of energy or element, be it cold or oxygen, is taken to its extreme, non-spacial condition. In this case the law of anti-conservation of energy applies, i.e. power is virtually unlimited as it is obtained from higher realms.

Egoism and altruism are also dialectic opposites, thesis and antithesis. On examination of the above table, however, the antitheses of Quantity and Quality are probably the most important in their ramifications because, through our contemporary development, through our logical, ideological, philosophical development, we have today come to attach a great deal of importance to quantity at the expense of quality, of greed at the cost of generosity, even to the extent of proffering the philosophy of greed as something totally acceptable morally and ethically.

However, it is always the qualities which are the defining factors. In itself quantity is relatively unimportant. In its simplest form it is unformed, amorphous mass - just weight. This quantitative drive has led us into a mass-production mentality. It has also taken us into the mode of reducing diversity and increasing uniformity principally for economic and control purposes. And herein lies a very great danger, for as Montesquieu stated in the 18th century, "The inner corruption of liberty shows itself first in uniformity".

We therefore need urgently to develop a system where the emphasis is far more on the qualitative side, for quality is the differentiator and animator of life.

Another pair of antitheses, not considered by science, are Gravitation and Levitation. Levitation is not taken into account at all, consideration being given only to gravitation, although a levitational force is basic to Nature. Viktor Schauberger once commented wryly that instead of asking himself what caused the apple to fall to the ground, Sir Isaac Newton should have asked how it got up there in the first place! What else if not levitation enables a tree to grow upwards against the action of gravity? Were there no levity, the tree would just spread out horizontally over the ground in a green amorphous mass. It does thrust skywards, however, and does so in response to another force operating in the opposite direction.

This is life-force, the quickening and uplifting energy; the force responsible for uprightness and right-side-upness of things. It is the rising power that imbues all healthy living things, particularly the more youthful, with a feeling of lightness, of relative weightlessness, removing all sensation of ponderousness of the limbs. With increasing age it gradually weakens, making the more elderly conscious of the weight of their bodies and the greater difficulty of movement. When this levitational force is extinguished, so too is the life-force of the body, which then dies.

When we consider these interdependencies and the illustrations of spiral forms in Nature (see figs. 2.10-2.12, chapter 2), we can see that the dynamics of the universe are therefore caused by an inherent imbalance, since



movement is always occurring somewhere between one extreme and the other. There can be no state of stable equilibrium, which would signify immobility, uniformity and stasis. Were such the case neither development, nor evolution would be possible and the whole condition of the Universe would be unchanging and unproductive, which is manifestly not the case.

#### 4.4 Phi or the 'Golden Section'

The eminent biologist Ilya Prigogine once stated that all natural movement arises out of a state of imbalance, of non-equilibrium. Non-equilibrium is a pre-requisite for movement and evolution in all its forms, and a state of equilibrium is therefore impossible in Nature. Yet we find that certain symmetries do occur, nevertheless. The pine cone shown in fig. 4.7 represents a condition of 'balanced imbalance'. The apparent symmetry of the pine cone at the same time embodies a dissymmetry in that from the left-hand side to

the right, its form encompasses five spirals descending and eight spirals ascending.

In terms of integers or whole numbers themselves, uneven numbers are generally considered male and even numbers female, since even numbers are divisible by two (mother + offspring). In the pine cone this gender aspect or duality on the one hand is represented by the five descending spirals of male energies or higher rotational velocities, since within the overall length, or cycloid-spiral-wavelength as it were, of the pine cone, they achieve more rotations. The eight ascending spirals of female energies, on the other hand, gradually being aroused by the male forces, are slower moving, making only one full rotation over their common wavelength. Between them a state of harmony, or resonance, comes into being in relation to their respective energies. Where the two systems of spirals cross; where they combine or negate each other, the seed of future pine trees, the new life, is formed.

The actual proportion of five male spirals to eight female spirals or 5:8 forms part of the

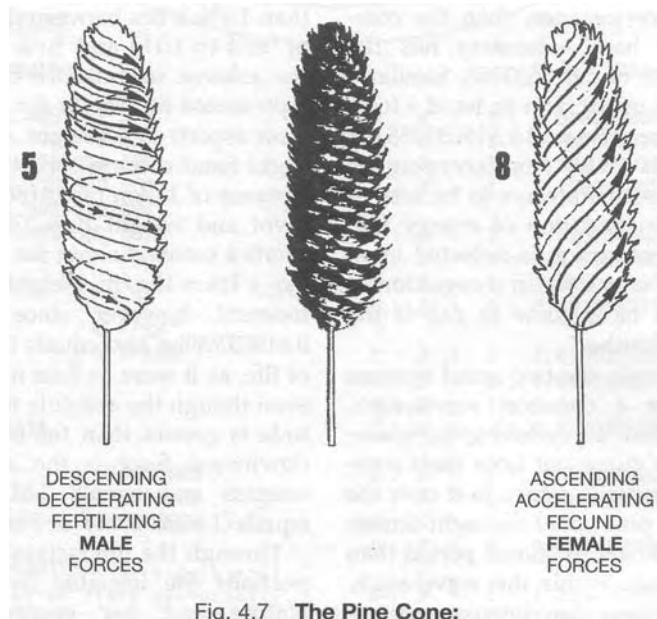


Fig. 4.7 The Pine Cone:

The symmetry of the pine cone demonstrates the condition of "Balanced Imbalance" which arises out of the harmonic interaction of two antithetical, complementary, but oppositely charged forces. The 5 positive male spirals of energy descend towards the 8 rising negative female spirals of energy. Where these cross each other a union of both forces occurs and there the seed of the new life is to be found. The male forces decelerate and the female forces accelerate to arrive at a mutual state of resonance.



so-called Fibonacci series, which progressively and with increasing accuracy, mathematically defines the proportion of the 'Golden Section', also known as Phi, or  $\phi$ , which becomes almost constant in the ratio of 1:1.618033988. Together with Pi ( $\pi$ ), the 'transcendental number' describing the circumference of the circle, this is one of the so-called 'Perfect' or 'Divine Proportions'.

Pi has been given the term 'transcendental', because no end to the sequence of numbers after the decimal point has yet been found, even though computers have been working on it for years. It is assumed to be of infinite length and therefore in this sense is a magnitude beyond time and space. Phi on the other hand, is more down to earth and is also found in the linear proportions of the pentagon (fig. 4.8). Phi is frequently expressed in many of Nature's creations, and by varying the angle between the adjacent radii (their relative lengths conforming to the Phi proportion), a number of natural spirals (fig. 4.9) and leaf-shapes (fig. 4.10) can be created.

Phi is also manifested in the structure of the human body. If the length of the hand has the value of 1, for instance, then the combined length of hand + forearm has the approximate value of 1.618033988. Similarly the proportion of upper arm to hand + forearm is in the same ratio of 1:1.618033988, or  $1:\phi$ . In my studies of Phi from an energetic point of view, it seems always to be associated with the transmutation of energy into form, since this proportion is reflected in so many of Nature's creations. In recognition of this peculiarity, I have come to call it the 'Transmutation Number'.

From another angle, the two spiral systems in fig. 4.11 have a common wavelength, dynamically viewed as cycloid-spiral-space-curves, since they curve out from their common axis and eventually return to it over the full length of the pine cone, the eight female spirals having a slower rotational period than the five male spirals. Within this wavelength, there are points where they interconnect creatively. Such a point I call the zero-point, since it is the point where both male and female energetic attributes die or are temporarily suspended in order that new life can be created.

The zero point is where all motion ceases and where all motion begins. It is a point of extremely high potential in the same way that the string of a musical instrument is still in a state of tension, of sound-creating potential, even though it is not vibrating.

Here, therefore, we have two systems of opposing, but complementary energy which create a symmetry, although this is created out of unequal forces. Referring to the function of the dialectic magnitudes set out in fig. 4.6 (p. 63), generally speaking those in the right hand column should prevail over those on the left for evolution to proceed productively. That is to say, the effect and function of the right hand aspects of each dialectic unity should predominate. Viktor estimated the correct proportion between them to be 1/3rd to  $2/3$ ds respectively. The ancient Chinese also considered an unequal relation to be the one most propitious for the harmonious unfoldment of life, their ratio being  $2/5$ ths Yin to  $3/5$ ths Yang. However in view of the manifestation of Phi in so many of Nature's creations, the proportion of 1:Phi is probably the more correct, since as a proportion of slightly more than 1:1% it lies between the two other ratios of  $2/5:3/5$  (= 1:1  $1/2$ ) and  $1/3:2/3$  (= 1:2). In fig. 4.12

the relative magnitudes of these forces are represented by Weight B = 1 kg (left hand column aspect) and Weight A = 1.618033988kg (right hand column aspect). Weight A is at a distance of  $1/\phi$  m or 0.618033988 cm from the pivot and weight B is 1 m away. Weight B exerts a moment about the pivot calculated as  $1\text{kg} \times 1\text{m} = 1\text{kgm}$ . Weight A exerts the same moment, however, since  $1.618033988\text{kg} \times 0.618033988\text{m}$  also equals 1 kgm. The seesaw of life, as it were, is thus in a state of balance even though the absolute force of one magnitude is greater than the other. The resultant downward force is the sum of these two weights and equals 2.618033988kg, which equals  $(1.618033988)^2$  or  $\phi^2$ .

Through the interaction of these two proportions the unstable dynamic balance in Nature and her energetic processes is achieved. Were it not for this tentative balance no forward progress would be possible, much in the same way that tightrope walkers cannot actually put one foot in front of the

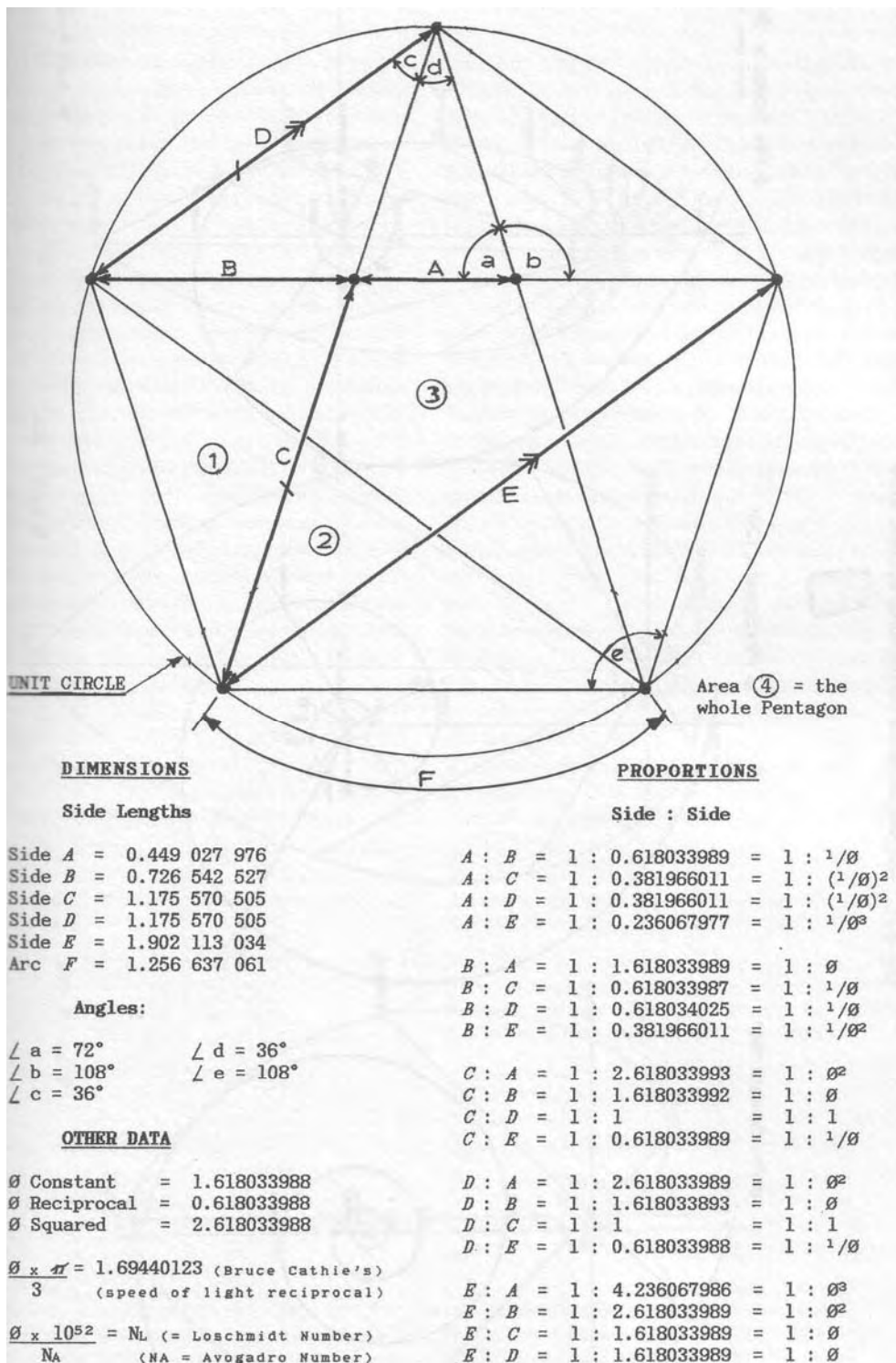


Fig. 4.8 The golden section ( $\emptyset$ ) from the pentagon in the proportion of 1:1.618033988

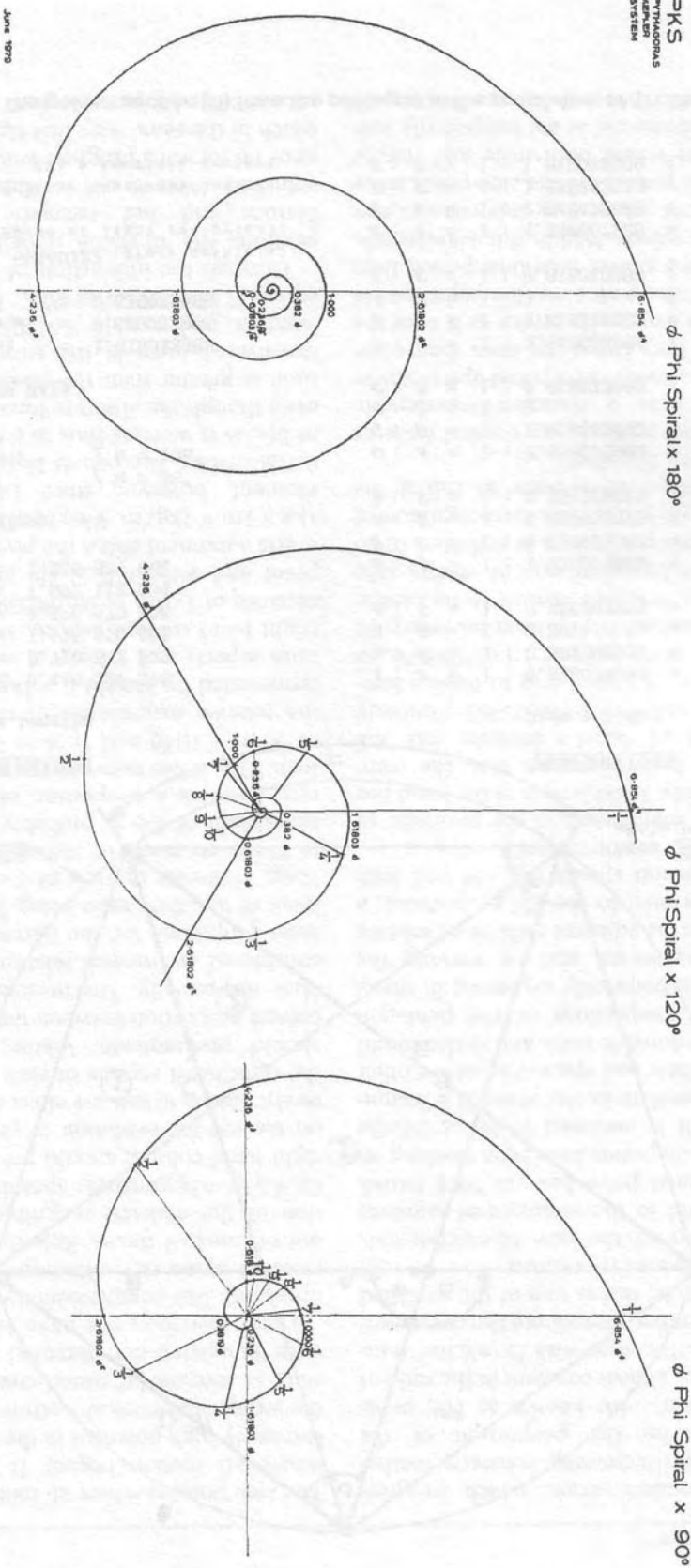
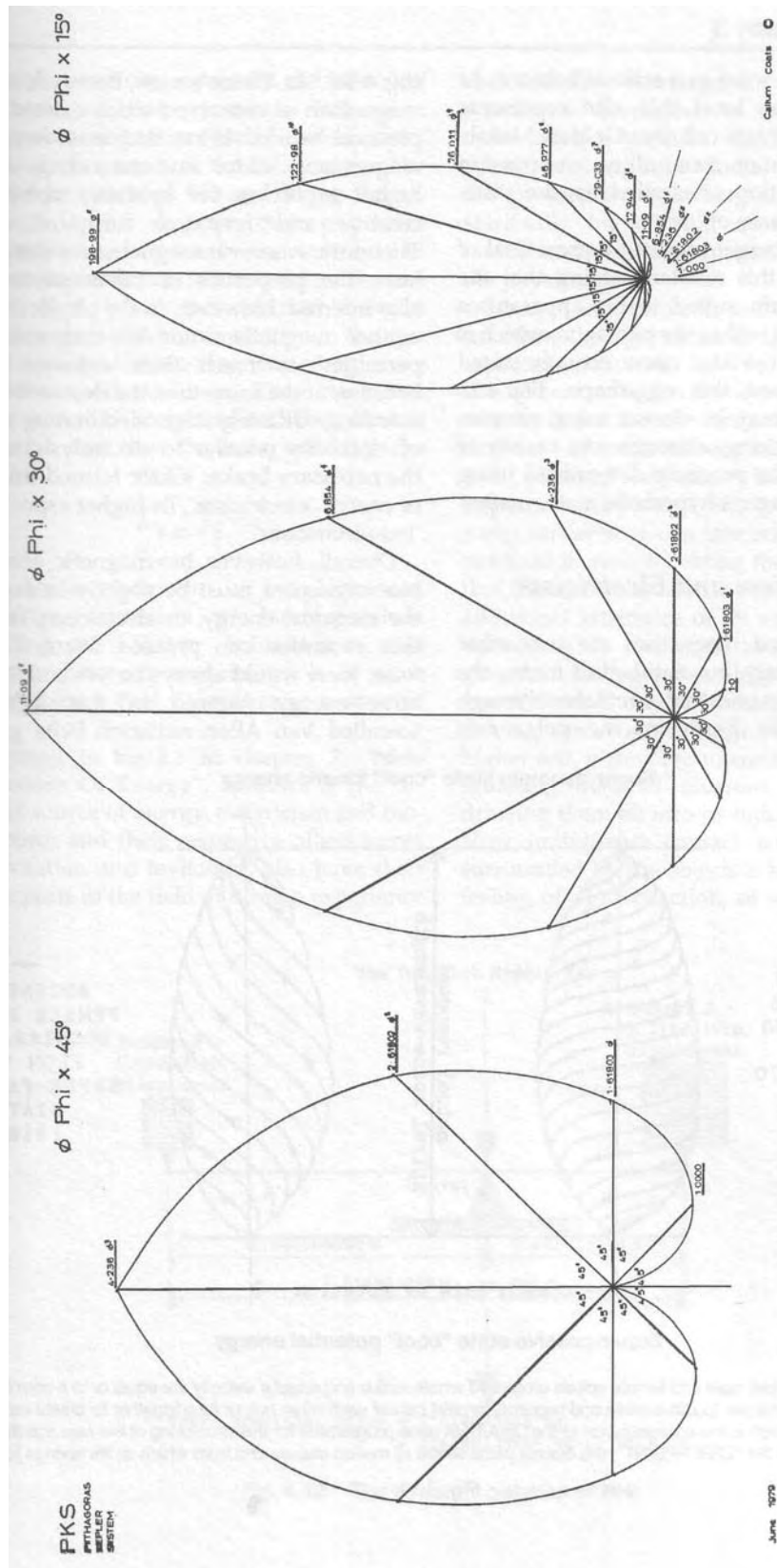


Fig. 4.9 Phi spirals on three different angular axes



other unless they are in a state of balance. At a more sublime level this also represents what the Buddhists call the 'Golden Middle Way', the path of tranquillity, compassion and contemplation unassailed by the vicissitudes and extremes of life.

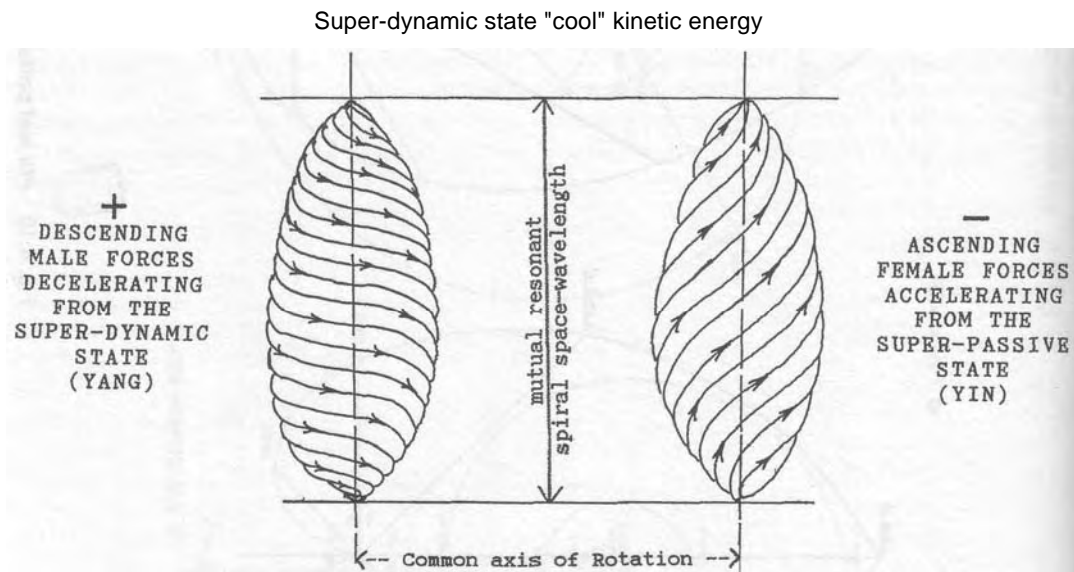
Viktor Schauberger attached a great deal of importance to this relation, stating that the extreme egg-form suited to his apparatuses was to be found within the pentagon, which is the Phi polygon. Viktor never actually stated how he obtained this egg-shape. Fig. 4.13 shows how it may be drawn using six pins and a loop of string, although any variety of egg-shape can be precisely determined using Walter Schauberger's hyperbolic mathematics.

#### 4.5 Magnetism and Electricism

Electricism and magnetism are two other complementary, but antithetical forces, the latter being the one that circulates through and around the Earth on the polar axis

(fig. 4.14).<sup>5</sup> In Viktor's view, however, no true magnetism as conceived today existed in the physical world. What did exist was 'bio-magnetism'. Viktor saw magnetism and its higher aspect as the uplifting, upbuilding, creative and levitative form of energy. Therefore, wherever magnetism is mentioned later, the properties of bio-magnetism are also inferred. However, in the physical world neither magnetism nor bio-magnetism are permitted to reach their extreme values because, at the same time the destructive, dismantling, disintegrative, debilitating energy of electricity (similar to electrolysis) applies the necessary brake. Viktor termed this form of energy 'electricism', its higher aspect being 'bio-electricism'.

Overall, however, bio-magnetic energy or bio-magnetism must be slightly in excess of the electrical energy, or electricism, in order that evolution can proceed. Were it otherwise, there would always be less and less creative energy. Viewed in this light, the so-called Van Allen radiation belts girdling



Super-passive state "cool" potential energy

At all points where male and female spirals cross and where radius and angular velocity are equal or in a harmonic relationship, both charges (positive-male and negative-female) cancel each other out, or fuse together to create new life, to bring forth seed, which is the encapsulation of the DNA/RNA gene programme for the structuring of the new manifestation.

Such a point is the "ZERO-POINT", the eternal place where all motion ceases and from which all life springs forth.

Fig. 4.11

the Earth therefore represent the electrical component of this symbiotic interaction between bio-magnetism and bio-electricism, which together produce the necessary pulsation, the hallmark of life and living things. Although in this diagram their respective magnitudes are shown to be constant, neither achieves its maximum value at the same time as the other. When the electrical energies expand to their maximum, relative to the system as a whole, the bio-magnetic energies are reduced to their minimum. They can therefore be seen to be reciprocal and their mutual interaction can thus be interpreted by the equation

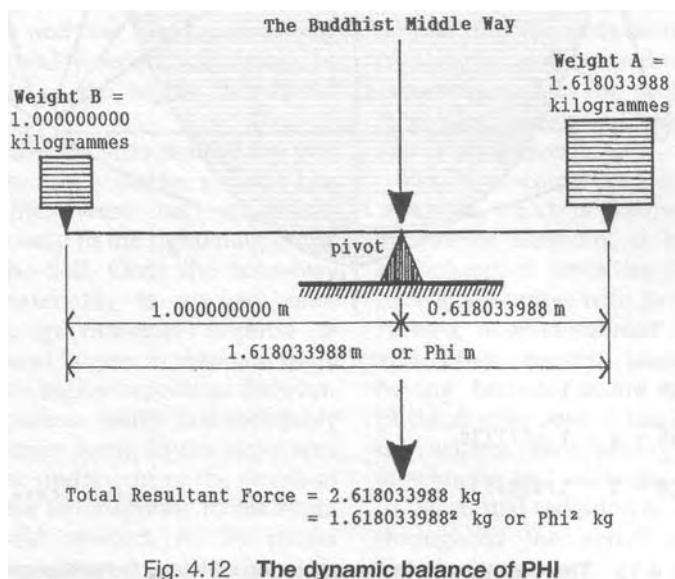
$$\frac{1}{n} \times n = 1$$

where  $1/n$  = electricism or bio-electricism, and  $n$  = magnetism or bio-magnetism. According to Viktor Schauburger this oscillation between magnitudes is of such high frequency that it appears as a state of rest.

Referring to fig. 3.1 in chapter 3, "New Dimensions Of Energy", concerning the ur-original source of energy, electricism and bio-magnetism and their respective allied forces of gravitation and levitation, also have their counterparts in the field of human experience

and the slow development of higher consciousness. Analogous to the full dynamic cycle of the tornado described earlier, a young, evolving soul's initial evolution lies in the progressive spiralling descent from its spiritually highest self down through the mental and emotional planes, finally entering the physical body.

Here in its primitive, undeveloped physical state, the ego becomes involved in self-aspected activities, in self-awareness, in self-ishness, wherein it succumbs to the ego-centric drive for the acquisition or 'encirclement' of material attributes. Possession and physical sensation become the all-important purpose of life, to the extent that some earlier societies 'encircled' their opponents, as it were, by eating them, in the belief that the consumer would thereby acquire the additional attributes of its victim. Although unconsciously connected to its spiritual origins, but having meanwhile become oblivious of them, the ego's immaterial energy and driving force (mind), still sourced from its higher self, is devoted towards greedily accumulating material illusions of well-being, drawing them all into its tight personal orbit. Now in intimate contact with and closely surrounded by the objects it has a-mass-ed, a feeling of dissatisfaction, of something miss-





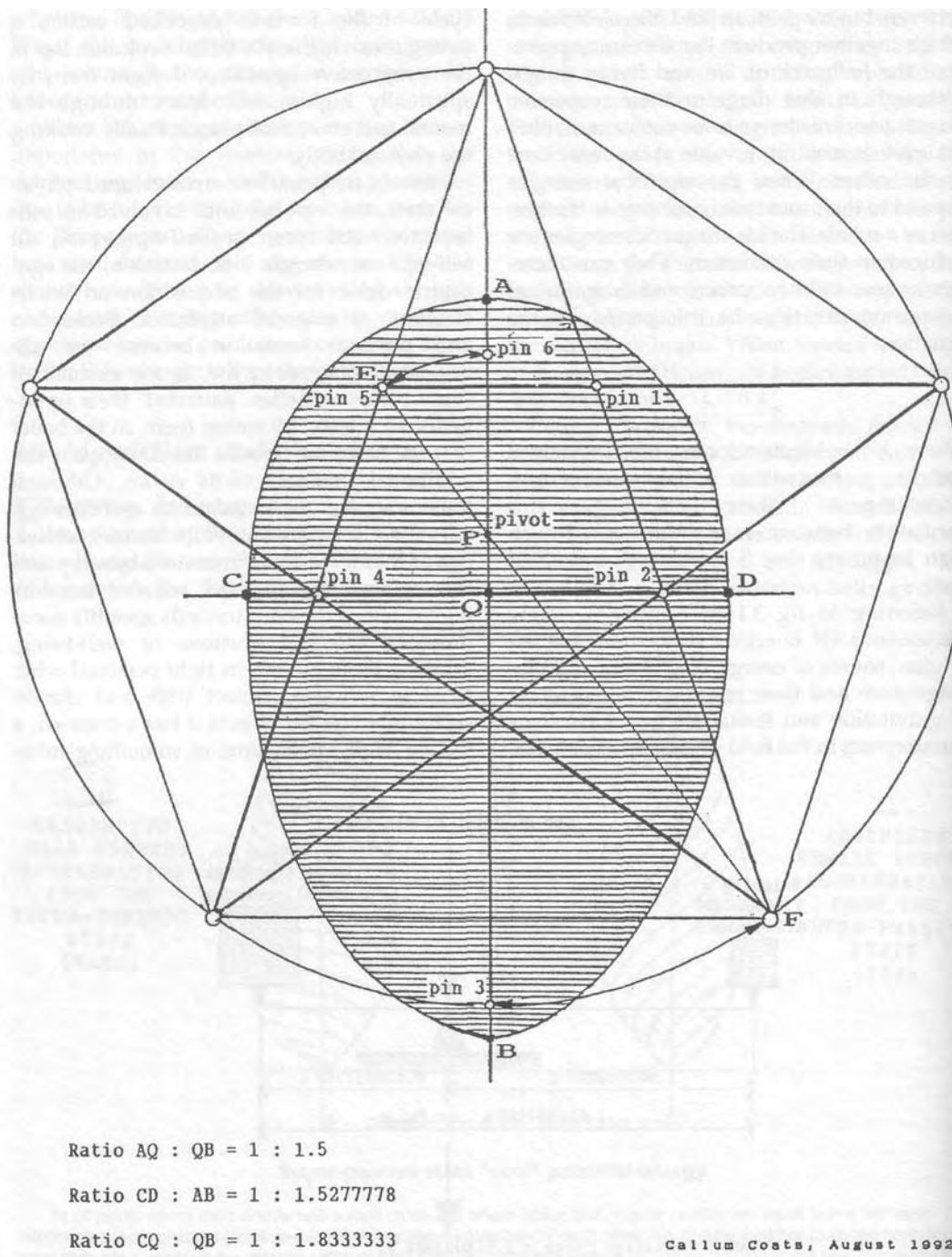


Fig. 4.13 The cosmic egg in the pentagon of Viktor Schauberg

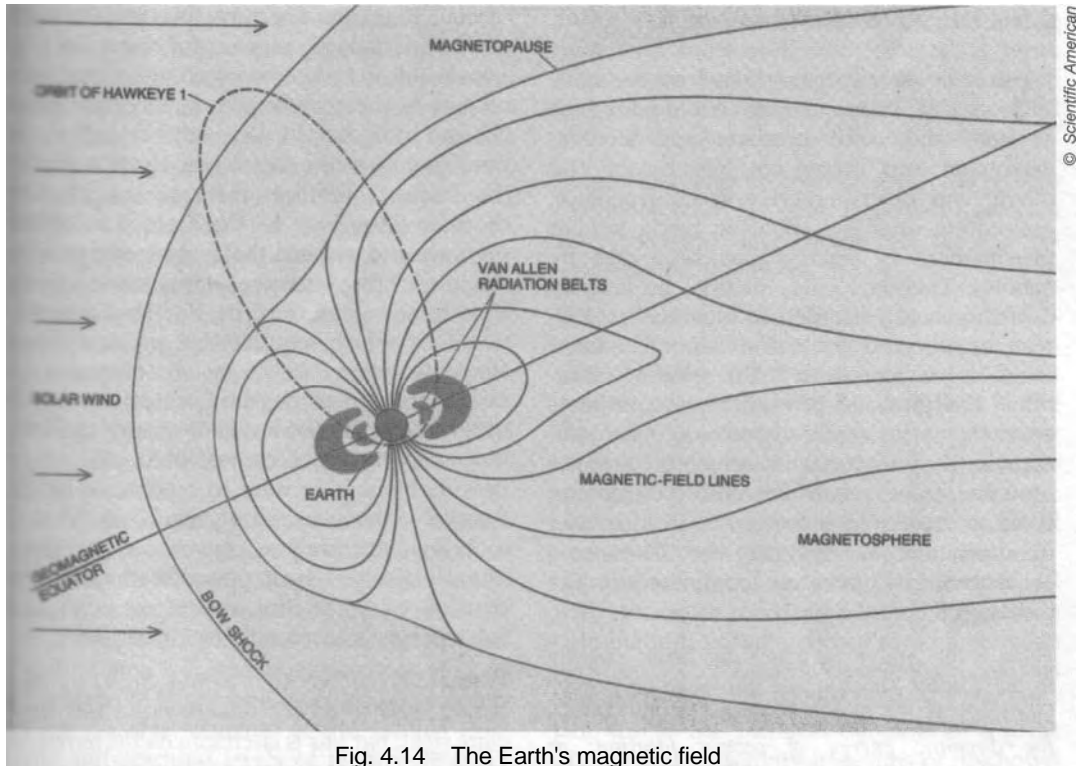


Fig. 4.14 The Earth's magnetic field

ing, gradually surfaces from the unconscious and the soul eventually discovers them to be hollow and devoid of actual tangible substance, as is the centre of the tornado. All at once the former static security of physical matter vanishes and the realisation slowly dawns that true reality, security and peace lie in the dynamics of the higher immaterial realms.

In the soul's descent into matter, the bio-magnetic forces, while acting to maintain stability and life, were not uppermost and contributed only to the tightening of the circle around the Self. Once the boundary condition of materiality is reached; once the acquisitive, gravitational impulse is exhausted, the soul begins to resonate more and more with its higher aspects as the ever-present bio-magnetism finally and inevitably must gain the upper hand. In the same way that it creates the updraught in the centre of the tornado, these bio-magnetic forces begin to draw the soul upward. As its power increases, bio-magnetism accelerates this

uplifting process and levitates the soul to the source from whence it came. As it rises up through the various planes of higher energy and spirituality, the soul's vibrational rate or frequency progressively increases and its motion reverses direction. It now changes from axial, self-centred rotation to radial expansion and in the process enters into an increasingly harmonic relationship with the rest of the Universe.

Finally reaching the level of infinitely high vibration, which is synonymous with a state of infinite harmony, it becomes one with everything; it loses its individuality as it once again unites with its originating source. Having now completed its long, arduous and often painful journey into matter; having become aware of the vacuity of physical substance, it has become filled with the selfless love arising from total non-attachment and adds its small contribution to the eternal radiation of unconditional love throughout the manifested and unmanifested universe.



## 4.6 Other Dimensions of Energy

Amongst the antitheses listed on the table on p. 63, Viktor viewed certain pairs such as heat and cold, pressure and suction, expansion and impansion, electricism and magnetism, centrifugence and centripetence, gravitation and levitation, as being similar provenances of energy, but separated by octaves. Therefore cold, suction, impansion, centrifugence, magnetism (actually bio-magnetism) and levitation are all related magnitudes. Endowed with specific vibrational energies and powers, these antitheses are the agencies or self-organising, intermediate, vibratory matrices of immaterial energies by which the gap between Will-to-create and creation, spirit and matter, and idea and manifestation is bridged. In The Secret Doctrine these forces are comprised in the concept of 'Fohat'.

Fohat is the 'bridge' by which the 'Ideas' existing in the 'Divine Thought' are impressed on Cosmic substance as the 'laws of Nature'. Fohat is thus the dynamic energy of cosmic ideation; or regarded from the other side, it is the intelligent medium, the guiding power of all manifestation. Fohat is the mysterious link between mind and matter, the animating principle electrifying [or bio-magnetising - c.C] every atom into life.<sup>6</sup>

In the attempt to describe these subtle energetic essences with terminology more familiar to readers than Sanskrit, it became necessary to coin various new terms under the collective term of 'ethericities', the word 'ethericities' itself referring to those supra-normal, near non-dimensional, energetic, bio-electric, bio-magnetic, catalytic, high-frequency, vibratory, super-potent entities of quasi-material, quasi-etheric nature belonging to the 4th and 5th dimensions of being. These ethericities are further categorised as 'fructigens', 'qualigens', 'dynagens'.

These respectively represent those subtle energies whose function is the enhancement of fructification (fructigens), the generation of quality (qualigens) and the amplification of immaterial energy (dynagens). According to their function or location these may be female

or male in nature. There are thus female fructigens and male dynagens, for example. The female attributes, however, are principally related to the magnitudes in the right hand column in fig. 4.6. In their aggregate these are the primary prime movers of creation and in the human mind enthusiastic or inspired thought gives rise to the formation of the immaterial dynagens that ceaselessly provide the motivating energy for external activity, thus totally confuting the Energy Conservation Law which requires that the amount of available energy be finite. To obtain some insight into what may be the relative magnitudes of the various levels of energy or vibratory energetic matrices here involved, it may be enlightening to refer to comments in The Secret Doctrine<sup>7</sup> concerning the 'Keely Motor', a free-energy device constructed by John Worrell Keely, which operated through the creation of a 'neutral centre', or in Viktor Schauberg's terms, a 'biological vacuum'.

We are told that Mr. Keely defines electricity 'as a certain form of atomic vibration'. In this he is quite right, but this is electricity on the terrestrial plane, and through terrestrial correlations. He estimates:-

		per second
Molecular vibrations	at	100,000,000
Inter-molecular vibrations	at	300,000,000
Atomic vibrations	at	900,000,000
Inter-atomic vibrations	at	2,700,000,000
Aetheric vibrations	at	8,100,000,000
Inter-aetheric vibrations	at	24,300,000,000

The vibrational level of the so-called ethericities would probably lie somewhere between the inter-atomic and inter-aetheric in the above table. Moreover they may well function at frequencies that can be beneficially or detrimentally affected by human thought. It is a known fact, for instance, that the level of white blood corpuscle production can be significantly influenced by the positive or negative attitude towards life of the human host. The extent to which the collective human psyche may influence these ethericities and their proper function may well be far greater than we imagine.

Imprisoned - as we have been led to believe - within our physical reality by the speed of



Here we come up against the long-held materialistically founded conviction that every creature on this planet evolved solely through processes of natural selection: that whatever shape, colour or form it has, is merely the result of accidental interactions and the influences and demands of the environment in which it has to exist. Although natural selection may play a certain role in the physical evolvment of the genetic base, any intelligent direction or control of evolution and development is totally excluded. Some creatures, fish, birds and flowers for example, are particularly breathtaking in their beauty, in the various proportions of shape and colour they embody, and seem to refute this hypothesis entirely. Their physical appearance is very hard to explain in terms of purely mechanistic and environmental demands.

The intricate geometry and exquisite form of many flowers speak far more about intention than random happenstance. The sheer magnificence of the peacock, for example, defies all rational explanation from a natural selective point of view. Its colour could not have evolved for purposes of concealment and self-protection, because the gleaming turquoise iridescence of its breast-feathers loudly declares its presence to all predators. Its tail too, with several superimposed layers of variously patterned feathers, capped with single quills upon which the famous 'eyes' flutter and sway, is difficult to construe as having evolved merely for the purposes of courtship. As far as the peahen's attraction to the male is concerned, it seems unlikely that one or two fewer layers of tail feathers would make much difference. So why all the layers?

What, apart from increasing the diversity and majesty of life, is the purpose of a peacock, if not purely for the sake of introducing exquisite beauty into this world for the delight of those entities whose immaterial sensitivities can appreciate it in all its aesthetic splendour? How else would evolving human beings be able to develop any aesthetic sense or learn what beauty and proportion is unless some examples were provided for the purpose?

Today new species are continually being discovered whose form, behaviour and other characteristics are totally suited - and with such perfection - to the surroundings in which they live. Each has its ecological niche, as it were, and fulfils a function contributing to the enrichment of the whole panoply of life and yet all this apparently happened by accident of Nature, a Nature, however, to whom we have ascribed certain laws. What formulated these sublime and mathematically elegant laws, if not some form of intelligence far beyond our own? For laws cannot evolve by accident or by themselves. What entity other than such as the ECI could have a high enough overview of affairs in order to perceive yet another space, yet another possibility, into which it could infuse new experiential life in the form of an ideally suited creative design?

Let us try, therefore, to think at least one octave higher and instead of developing extremely complex theories based on the morbid logic of random interactions, let us entertain the notion that things are perhaps much simpler than we perceive, for as Albert Einstein is reputed to have stated, "The simpler a theory is, the more it is to the point".

## Notes

1. The Secret Doctrine by H.P. Blavatsky, Adyar Ed.1971, Vol.1, p.71.-1971), Theosophical Pub. Ho., Adyar, India;
2. Ibid, Vol.1, p.333.
3. From list of Viktor Schaubergers quotations in the Schaubergers archives.
4. The Compact Edition of the Oxford English Dictionary, Oxford Univ. Press 1971.
5. Interplanetary Particles and Fields (diagram by Dan Todd), by James A. van Allen, © 1975 by Scientific American, Inc.
6. The Secret Doctrine above, Vol. 1, p.81.
7. Ibid, Vol.2, p.286.
8. The New Science of Life, by Rupert Sheldrake: Blond & Briggs, London, 1981.

# 5

## THE SUN

### 5.1 The Light and Temperature of the Sun

The source of energy that supports all life on this Earth, our Sun<sup>1</sup>, needs to be examined. In a sense it is also the spiritual centre of our planetary system, Johannes Kepler, the great astronomer famous for his three laws of planetary motion, not only considered it to be a magnet which has connotations with the attributes of centripetence, cold and levitation mentioned in the previous chapter), but also believed that as an immaterial body its energy, and by extension that of the whole planetary system, was derived from and governed by the realm of the spirit.

In theosophical teaching the Sun is the abode of the Logos, the spiritual entity that administers and orders the planetary system. Viktor Schaubergger held similar views about it, but in its relationship to the Earth he also considered it to be the male fertilising impetus for life on this planet, as will be shown later. In addition he made assertions about the Sun, which are Copernican in their ramifications.

As part of the Pleiadean system our Sun, a fairly average star, revolves around Alcyone, taking about 180 million years to complete one orbit. Its speed in relation to the largely hydrogen-filled space through which it passes is around 48,280km/hr and it is presently moving in the direction of the Hercules system. It has a diameter of 1,392,530km, roughly 110 times greater than that of the Earth. Its magnetic poles also

swap over every 11.2 years as part of the well-known magnetic sun-spot cycle and it pulsates, like something alive, expanding and contracting by about 3km every 160 minutes (see analogous description of a dipole in fig. 6.11, chapter 6). All this data, however, can be gleaned from various textbooks and therefore will not be elaborated further here.

One aspect concerning the Sun and our conception of it does need to be examined, namely the question of temperature. In our understanding of temperature, we generally consider it to be a measure of heat. For most of our customary purposes this is indeed the case. However, when speaking of the temperature of the Sun, for instance, which is supposed to be about 6,000°C at the surface and 20,000,000°C at the centre, we may no longer be concerned with thermal temperature, but rather with energetic activity, for according to Isaac Asimov:

Temperature here has to be distinguished from heat. The temperature is a measure of the kinetic energy of the atoms or particles in the gas, but since the particles are few, the actual heat content per unit of volume is low.<sup>2</sup>

In the light of previous discussions concerning the contrasting characteristics of axial->radial (inside-outward) and radial->axial (outside-inward) motion, it is therefore not kinetic activity per se that generates heat, but it is the type of motion that produces either heat or cold. In the context of the Sun, therefore, temperature may be merely a measure of kinetic energy and may have little or no thermal content at all. Indeed viewed

thermally, and since we cannot actually visit the Sun, the conditions applying to such activity may actually be icily cold. This proposal would represent a gigantic paradigm shift. It would be against all reason and apparent logic, just as was Copernicus' assertion in 1543 that the Earth actually orbited the Sun at a time when the opposite was held to be the case, although as early as the 3rd century BC, Aristarchos of Samos, a Greek astronomer, had already advanced the theory that the planetary system was heliocentric. Copernicus' daring declaration, however, proved to be true.

And this is perhaps the moment to drop Viktor Schauberger's bombshell! Viktor considered the Sun to be a cold, dark body, expressing this view in the introductory remarks to "Questions for Science" in his book *Our Senseless Toil* published in 1934, in which he states:

Since the very beginning of time the Sun has stood above everything, staring down in icy silence at the frenzied activities of humankind, who regard it as a fiery orb. How could it be otherwise, such is their direct mental approach towards life! The closer we approach this source of light and heat, the colder and darker its face will become. The nearer we are to it, the brighter the stars will be and as its light diminishes, heat, atmosphere, water and life will also disappear.<sup>3</sup>

Astonishing as this may be, let us not reject the proposal out of hand, for as was mentioned in chapter 1, Viktor made many of his discoveries by despatching his "free consciousness into those places the eyes cannot see". These assertions are not further elaborated in the documents in my possession, but in view of the number of other practicable discoveries he made in this way, they should not be merely discounted as foolish conjecture. We shall therefore examine the two claims of darkness and cold more closely. Let us begin with the aspect of darkness, for there is some evidence to support his view that, without any atmosphere, no stars would be visible.

In the last sentence of the above quotation there appears to be a slight conceptual inconsistency, because the Sun is also a star.

However, since we cannot know the exact sequence of Viktor's train of thought or imagery before he committed it to paper, in order to make sense of it in line with known facts it may be more appropriate to reverse the order of the last two sentences in the above quotation. Let us examine the last sentence first:

The nearer we are to it, the brighter the stars will be and as its light diminishes, heat, atmosphere, water and life will also disappear.

In this statement the keyword is 'nearer', which does not define how much nearer we have to be, whether half way towards the Sun or merely at very high altitudes above Earth's surface. According to available information, once free of the denser atmosphere and the lack of clarity caused by the presence of atmospheric dust, water-vapour, etc., the stars do increase in brightness and more of them are visible than from the surface of the Earth.

Indeed in the documentaries showing the various space-shuttle flights it is quite evident that there is a great deal of light at the altitude at which the shuttle orbits, i.e. about 800km or 500 miles. The visual clarity at orbital altitude is phenomenal, the intensity' of light extreme; doubtless the Hubble space-telescope was sent into orbit to take advantage of this super-clarity. Instead of the normal graduations of shade that occur on Earth, however, in orbit the areas of light and shade are sharply defined with little graduation, being reduced to almost pure light and shadow. This is because the density of the particles of the surrounding gas is insufficient to cause any significant lateral diffraction or scatter, which would vary the direction in which the light is propagated, thereby lightly illuminating the areas in shade.

From this it would appear that it is upon the density of the gas particles in the space surrounding the Earth that deceleration, diffraction and scattering of radiation and the overall luminosity depend. Relative to space, the Earth's atmosphere is extremely dense and would most certainly have a braking effect, causing the very high frequency of the

incoming radiation to be reduced to the frequency levels of visible light. The greater the density, the greater the scattering, which in to aggregate at lower levels of the atmosphere acts like a magnifying glass, producing an enlarged image, a phenomenon which explains why the Sun and the Moon appear larger when just above the horizon at dawn or dusk. In this sense therefore, the "nearer we are to" the Sun at a small scale, "the brighter the stars will be".

At a larger scale, however, the picture may well change markedly, for as we proceed from the Earth's surface towards deep space, the particle density gradually decreases from about the Loschmidt constant<sup>4</sup> of  $2.68719 \times 10^{19}$  (or 26,871,900,000,000,000) particles per cubic centimetre at standard temperature and atmospheric pressure until it equals the density of the interstellar hydrogen gas, estimated at 1 gas atom per  $\text{cm}^3$  which, relative to conditions on Earth, represents an extreme vacuum.

While high-frequency electromagnetic radiation can be made to manifest itself as visible light in a cathode ray tube under conditions of very low pressure or a moderate vacuum, if this is increased to an extreme vacuum, then the light disappears. As far as the generation of light is concerned, therefore, the decisive factor here would be the specific particle density required to produce it which, at a certain distance from the Earth may be too rarefied to do so. Assuming for the moment that there is such a boundary condition of density, the sky would then gradually darken as it is approached, in keeping with the assertion in the penultimate sentence in the above quotation, namely; "The closer we approach this source of light and heat, the colder and darker its face will become," and in regions lying beyond it the sky would be totally black.

If this is actually the case, then whence did the light come that enabled the astronauts to be filmed during their visit to the Moon, which is supposed to have no atmosphere? In his book *The Awesome Life-Force*<sup>5</sup> Joseph H. Cater, a physicist and engineer who studied data from the American Apollo missions to the Moon very closely, discusses amongst

other things the presence or otherwise of an atmosphere and strong gravitational field on the Moon. The scientifically proffered view of the absence of any significant lunar gravity he contests, stating that:

...A strong Moon gravity, of course, is not compatible with orthodox physics. Other powerful evidence of a dense Moon atmosphere came from statements made by astronauts during Apollo missions. The following case is a typical example. Prior to the publicized excursions to the Moon, early astronauts had stated that the stars were not visible above the atmosphere. This is to be expected. There is little or no diffusion of light in outer space and therefore the only stars that could be seen would be those whose discs could be resolved. This could only be done with powerful telescopes. An atmosphere functions in a manner analogous to a lens. The light from a distant star is diffused and spread out. Consequently, stars are visible because of a greatly enlarged and distorted image of the disc caused by the atmosphere.

On the Apollo 11 mission shortly before reaching the Moon, Armstrong stated that he could see the crater Tycho clearly and that he could see the sky all around the Moon, even on the rim of it where there is no earthshine or sunshine, Collins then stated, 'Now we're able to see stars again and recognise constellations for the first time on the trip....The sky's full of stars...it looks like its night side on Earth.' This means that after leaving the Earth the astronauts could not see any stars until they got close enough to the Moon to view them through the Moon's atmosphere!

If this transcript of the astronauts' commentary is authentic - and there is no reason to suppose that it is not - then light is a function of the atmosphere without which no stars can actually be seen. By extension, this invisibility could obviously also apply to the Sun, its actual degree of visibility as a much larger, far closer and more powerfully radiant object being dependent on the ultimate extent and attenuation of the Earth's atmosphere. In this sense, therefore, the face of the Sun could indeed be dark. All of this would appear to confirm Viktor's proposition.

Because no-one apparently has as yet been far enough away from this planet physically, i.e. far beyond the Moon, the extent to which

the atmosphere and visible light actually reaches into space is not known. It could reasonably be assumed, however, that there is a very gradual attenuation of both until the atmosphere equals the degree of rarefaction of the hydrogen gas that fills interstellar and intergalactic space. Alarmingly, we might find, were we able to go far enough away, that upon looking back at our own planet we could not even see it! It would be black; it would be dark! We would find ourselves engulfed by a particularly Stygian blackness in which there was nothing to be seen at all. There would be no up, no down, no right, no left, no sideways, just total disorientation and isolation.

Let us turn now to the question of cold, for as we approach the Sun, as we climb higher, it certainly does get colder. In actual fact the temperature varies with height as can be seen in fig. 6.1 in chapter 6, although in connection with Isaac Asimov's definition of temperature above, it is a matter of conjecture whether the values indicated in the upper regions of the atmosphere in the above fig. are to be interpreted as thermal or kinetic.

If there is an outpouring of heat from the Sun as is presently believed, then why do these various regions of extreme cold exist within the atmospheric envelope? Perhaps they lie within the zones where the Earth's magnetic or bio-magnetic field lines are strongest (neutron concentration), the heat being generated in the Van Allen radiation belts (see fig. 4.14 - concentration of electrons and protons) or where the electrical component of the Earth's electromagnetic field predominates. Moreover, if interstellar space is a near absolute vacuum with a thermal temperature of  $-270.15^{\circ}\text{C}$  ( $3^{\circ}$  Kelvin), then how does the Sun's supposed heat ever reach us, since, being unable to pass through an extreme vacuum, a denser medium is therefore necessary for the propagation of heat-rays or infra-red rays?

Curiously enough, while the Sun's outer envelope rotates about its axis in 25 days at the Equator, towards the poles it rotates considerably more slowly, taking 34 days to complete one revolution. Recalling the earlier discussion of radial-axial motion - the move-

ment from outside inwards - and the centripetal interrelationship between cold, suction and biomagnetism, this may perhaps be due to the concentrative effect of the greater density of the magnetic field lines entering the current (in time) north pole radially-axially, i.e. vortically, and leaving from the current south pole axially-radially. It could therefore be mooted that as the particles of the more rarefied equatorial gases draw nearer to the solar north pole, they would tend to become increasingly contracted and concentrated spatially owing to the cooling and densifying effect of radial->axial motion and its attendant biomagnetism. As a result of exposure to this extremely intense biomagnetic field the particles would implode isotropically<sup>6</sup>. This would effectively remove some of their outer (that is, detectable) translatory velocity, thus producing the apparent deceleration in lateral movement, a deceleration that could not happen if we were here concerned with heat, since heat causes expansion. With immense heat, therefore, expansion would be immense. At the solar south pole on the other hand the process would take place in reverse order; the super-cooled, biomagnetic particle constriction gradually being released as the magnetic lines diverge and the field intensity decreases, thus permitting the particles to 'breathe' and expand, giving rise to the faster rotation observed about the equator.

Should this proposition concerning the deceleration of lateral motion towards the poles be correct, then a corollary would be that, thermally speaking, the Sun is at least a relatively cold body, despite a high kinetic temperature. In terms of its radiant qualities it is known that the superconduction of electricity, that is, the resistanceless transport or propagation of energy, takes place at extremely low thermal temperatures. In view of the fact that the Sun has been radiating vast amounts of energy over billions of years that it is able to do so may well be due to an effect similar to superconduction. By extension the energies given off by the Sun, which deluge the Earth with about 100,000 trillion watts of energy, would therefore be the result of cold fusion, representing the aggregate

mass defect ensuing from the cold fusing of myriads of pairs of hydrogen atoms into helium atoms.

Should Viktor's hypothesis that the Sun is both dark and cold prove to be correct, it would without doubt have far-reaching implications for all human intellectual endeavour, science, religion, etc., and the resultant upheaval would be gargantuan in its ramifications. As in the earlier case of Copernicus, suddenly all accepted doctrine, all that had previously been held to be true, would be overturned. The whole system of education, textbooks and religious documents would have to be rewritten.

Two other sources known to me also allude to the limits of the Earth's and the Sun's light and heat. While not widely known, they are presented below because in Viktor's writings there is specific explanatory detail of this remarkable reappraisal of reality. It would be a serious omission if these far-seeing perceptions of Victor's were left wholly unsupported by other available data and merely considered to be the delusions of a madman, which he most certainly was not.

The first quotation is from James Churchward's book *The Lost Continent of Mu*<sup>7</sup>, which is a largely anthropological study examining the folklore, legends and myths of the peoples of the Pacific basin and the Indian subcontinent who survived the cataclysm of the subsidence of Mu, a land which according to his research occupied most of what is now the Pacific Ocean. In it there is a translation of the Naacal Tablets, reputed to have been written by the Holy Brothers, the Naacals, who had been sent from the motherland of Mu to teach in the colony of Burma. On these tablets are recorded the seven intellectual commands of the seven superlative intellects of the Seven-headed Serpent, together with nine explanatory diagrams describing the manner in which the Earth was formed. The story told therein is analogous to the seven days of creation recorded in Genesis. The third intellectual command states the following:

The third command was: 'Let the outside gases be separated and let them form the atmosphere and the waters.' And the gases were separated; one

part went to form the waters, and the waters settled upon the Earth and covered its face so that no land anywhere appeared. The gases that did not form the waters formed the atmosphere, and:

- The light was contained in the atmosphere.
- And the shafts of the Sun met the shafts of the light in the atmosphere and gave birth to light. Then there was light upon the face of the Earth;
- The heat was also contained in the atmosphere.
- And the shafts of the Sun met the shafts of the heat in the atmosphere and gave it life. Then there was heat to warm the face of the Earth.

The second quotation is taken from *The Life and Teaching of the Masters of the Far East* by Baird T. Spalding<sup>8</sup>, written as a record of his three-year visit to Tibet in company with ten other Americans at the invitation of high lamas, and which began in 1885. Here it was explained to Spalding that:

If we take the science of things, we know there is a legend told here that all the heat and light and many other natural forces are contained right within the Earth itself. The Sun, of itself, has no heat or light. It has potentialities that draw the heat and light from the Earth. After the Sun has drawn the heat and light rays from the Earth, the heat rays are reflected back to the Earth by the atmosphere that floats in the ether. The light rays are drawn from the Earth in about the same manner and are reflected back to Earth by the ether.

As the air extends only a comparatively short distance, the effect of the heat rays varies as you leave the Earth's surface and ascend toward the outer limit of the atmosphere. As the air becomes less dense, there is less reflection; consequently as you ascend into the higher altitudes the heat becomes less and the cold increases. Every heat ray, as it is drawn out and reflected, drops back to the Earth, where it is regenerated. When you have reached the limit of air, you have reached the limit of heat.

It is the same with the light rays. They are drawn from the Earth and reflected back by the ether. As this ether extends much farther from the Earth than the air, the light rays extend much farther before they are all reflected. When you have reached the limit of ether, you have reached the limit of heat and light. When you have reached the limit of heat and light, you have reached the great



cold. This cold is far more solid than steel, and it presses down upon the ether and the atmosphere with almost irresistible force and holds them together.

Now that we have disposed of the (them) above, let us take the other scientific legend and go below. According to this legend, the Earth a short distance from the surface is a molten mass. It is so hot that it melts any substance. This molten mass at the centre revolves more slowly than does the crust at the outer, and the belt where the two meet is the place where the natural forces are generated and there, again, the hand of God rules all.

If all these quotations represent the truth and should Viktor Schauberger be right, then it makes our Mother-Earth, this lonely capsule of light amidst the darkness, all the more precious to us. What we do to the atmosphere enveloping our planet and to the life-sustaining environment of water, trees and warmth within which we live and to which we owe our very existence, then becomes of crucial, vital importance. It is that special medium that gives us light and allows us to marvel at all the beauty that surrounds us and to experience what earthly life is. For this reason the worsening pollution of the skies becomes of even greater concern, not only for its more immediate thermal and climatic effects, but also for its overall luminosity. If we do nothing, if we do not act effectively and quickly, then perhaps the light on this planet will slowly and irrevocably go out and all life will be painfully extinguished.

## 5.2 The Sun as a Fertilising Entity

Viktor Schauberger considered the Sun to be the entity responsible for impregnating the Earth - Mother Earth - thereby creating the myriads of different life-forms that inhabit this planet. Its life-activating rays penetrate through the atmosphere and deep into the ground to awaken the sleeping, passive princess (the elements and substances of the Earth) and stimulate them into an evolutionary union. The dynamic motion of the Sun's radiant and fertilising energies, the bearers of in-form-ation and the stimulators of activity, must decelerate through external

or internal resistances in order to modify their rate of vibration and intensity to such a point that they harmonise with the rate of vibration of the now slowly, but increasingly accelerated and more stimulated, receptive and passive female forces. They must attain a mutual level of interaction, a state of reciprocity in order to be able to combine with one another, an example of which was shown in chapter 4, figs 4.7 and 4.12. Without this modification or change in the state of both forces, no growth or evolution can take place. When they are in a state of resonance, however, reproduction or regeneration occurs, the Earth-ovum is fertilised and the processes of incubation, birth and growth begin (in-cube-ation means to evolve in three dimensions).

All life can thus be seen to evolve through the interaction of male and female entities, energies and essences. Each has its own special direction or orientation of action and operates perpendicularly to the other. As energies of contrasting gender they are also imbued with opposite, but yet complementary, properties and potentialities, which function on diverse planes varying from the gross material to the ethereally subtle, as was explained in the previous chapter.

This is a pulsating process which varies according to the time of year and the elongation or reduction of the respective developmental paths of the upwardly-radiant earthly subtle energies and the downwardly-radiating solar ones as they alternate between the extreme and the mean, from differentiation to integration. In winter when there is the highest solar luminosity (greater percentage of blue and ultraviolet light) and the greatest passivity on the Earth, with low temperatures and the cold, bright, white, winter sunlight, the vegetation is dormant and much animal life hibernates. At this time reproduction, fertilisation and growth are reduced to a minimum.

But in spring and summer, when the angle of the Sun's rays increases, the thermal intensity of its radiation rises as the intrinsic power of the ultraviolet increases and the ultraviolet-infra-red balance shifts more towards the red end of the spectrum. This

stimulates the passivity of the Earth and the high-frequency energy of the Sun is moderated through their mutual interaction. Acting along their mutually perpendicular paths, both come into a state of reciprocal resonance and an expulsion of the waste products of this energetic exchange occurs. This outfall is what Viktor Schauberg saw as the discharged precipitates of higher, bipolar subtle energies which result in what we commonly call 'growth'. A third entity is thus created, the offspring of the marriage between male and female potentialities. With the exception of oxygen and hydrogen, Viktor grouped all the known elements and their compounds under the general classification of 'female', although some, such as silver, zinc and silicon, were endowed with paternally-oriented characteristics and powers, whereas gold, copper and limestone were more maternally oriented (these will be discussed in more detail in chapter 20). All these elements he called 'carbones' ('carbone' or 'carbones' is my English interpretation of the original German expression 'Kohlestoffe', normally spelt Kohlenstoffe, the additional 'e' in the English word redefining and enlarging the scope of the usual term 'carbon'), reflecting the predominance of carbon and carbonous matter in the formation of the physical structures of life, the various living bodies and organisms created in the womb of Mother-Earth. In terms of her procreative psyche Goethe called her the 'Eternally Female' and the 'All-uplifting'. To endow the Earth with this attribute, Goethe must have had some inkling of the forces of levitation. Oxygen, on the other hand, Viktor deemed to be male and a lower form of solar energy, seeing both Sun and oxygen as the means by which these female, fecund, fructifiable potencies are fertilised, for without the Sun there would be no life at all, and without oxygen there would be no organic growth and development. Hydrogen, however, is in a category of its own, for Viktor viewed it as the carrier substance of both oxygen and carbone, often writing it down in the hieroglyphic form in fig. 5.1. If we look at the world from space this concept is quite factual, because we can see that our planet, com-

posed as it is of carbonous and fertilised by oxygen, is floating in the carrier ocean of the hydrogen gas filling all space.

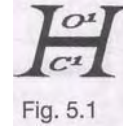


Fig. 5.1

As mentioned above, each of these two potentialities of opposite gender has its own characteristic orientation or axis along which it moves in a particular direction. So the Sun's paternal energies are propagated vertically with respect to the Earth's surface, whereas the Earth's maternal energies are propagated horizontally. This 'horizontality', as it were, depends on the scale at which it is observed. At a small scale this lateral extension appears flat and planar whereas, viewed over the Earth as a whole, it is actually curvilinear and spherical, and is coupled with a certain expansive movement. The Earth-ovum is therefore fertilised through the Sun's seasonally pulsating, male impulses from a direction perpendicular to the Earth's surface and embodies the most ethereal and sacred act of coition (fig. 5.2b). In its *modus operandi* it is comparable to the fertilisation of the female ovum by the male sperm (fig. 5.2a) and, without in any way wishing to offend, the human sexual act is perhaps the best way to explain it.

Analogous to the penile penetration of the female (Earth) by the male (Sun), this pulsating movement along its characteristic, straight (vertical) axis subsequently metamorphoses into a movement perpendicular to it; into a spherical expansion of the Earth's matter-energy field, like the rotund expansion of the womb. In human beings (and many animals) the growth of the foetus produces a lateral stretch-expansion of the outer tissues, namely a horizontal movement that occurs when the outwardly-radiating, formative energies reach the physical limits of their radial extension. They are then propagated parallel to the outer surface. Equally applicable to the Earth, both movements of energy are caused by the expansion of the internal pressures resulting from the conversion of the combined energies of the two genders into physical mass (the baby).

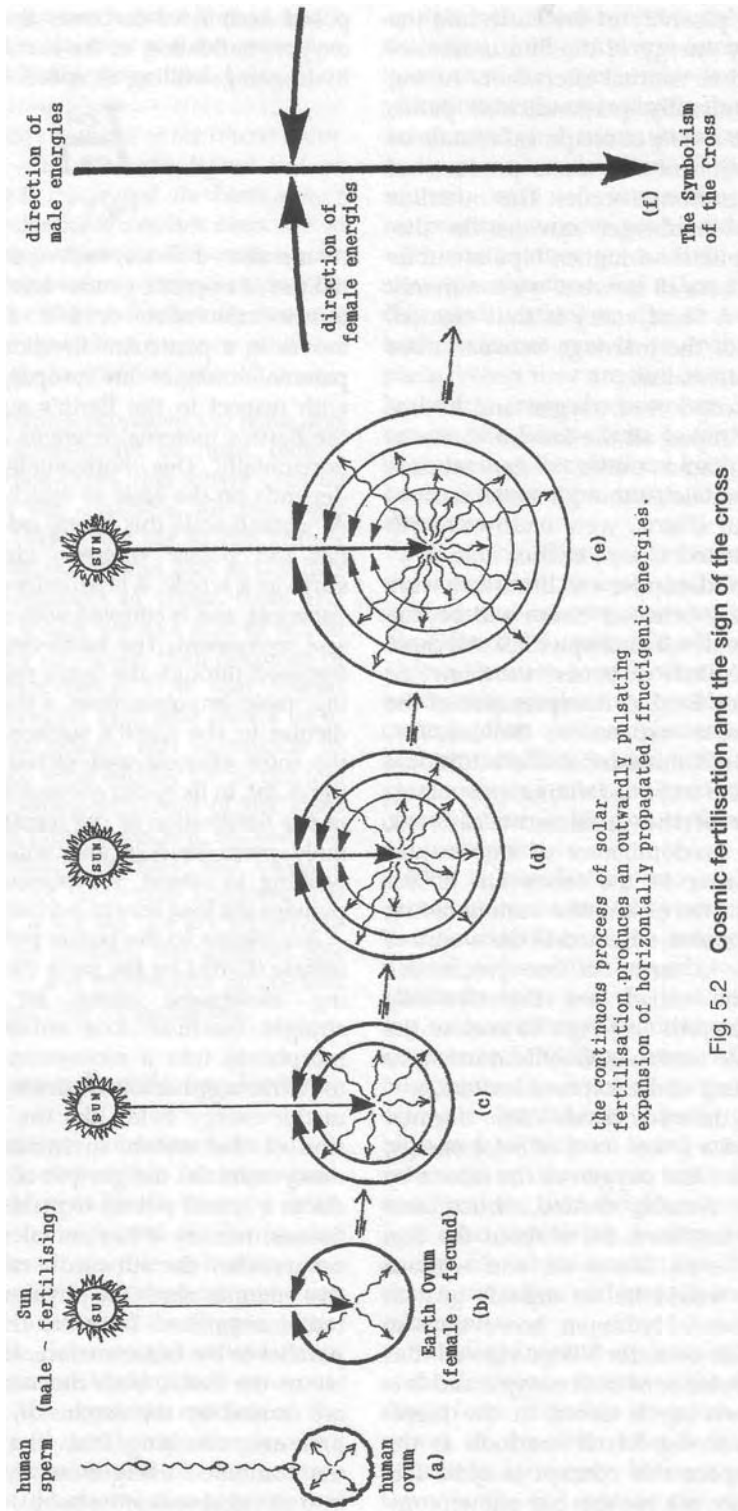


Fig. 5.2 Cosmic fertilisation and the sign of the cross

The same applies to solar fertilisation. During the winter months, those fertilising solar ethericities, which have not been metamorphosed into physical growth by fusing with their female counterparts present in the higher strata of the Earth, continue their inward penetration and encounter the embryonic female energies lying deep below the surface. Here their union gives rise to the procreative energies that produce the burgeoning blossoms of springtime. Since this process of impregnation is repeated continually, there is an almost continuous outward- and upward-moving, pulsating flux of maternal fructigenic and qualigenic matter radiating from the centre, which forms and concentrates at the ground surface (figs. 5.2b, c, d & e) providing the creative impulse for renewed growth.

Reduced to their simplest form, the paths these two ethereal energies follow could be represented by the Cross (fig. 5.2f), symbolising the ennobling creative power of the ECI in both material and immaterial dimensions. When the sign of the cross is made by a priest during Mass, for instance, the first gesture is a strong, blade-like downward movement of the hand reflecting the Sun's primary downward fertilising impulse. This is then followed by the softer, flatter sideways movement of the palm, which alludes to the horizontal motion of female, fructigenic energies.

At a physical level, loving coition between man and woman should be a very sacred act, never to be debased, for as entities with opposite charge and potential, in their true, exalted union of mind, body and soul, man and woman fulfil the function ordained by the ECI for the furtherance of material life and higher spiritual evolution on this planet. In its highest sense and performance this union is the closest that two human beings can approach the essential nature of the selfless outpouring of the Divine on the physical plane of existence, for it is through the intermingling of their characteristic energetic essences that the eternal ur-procreative spark of new life is thrust forward into the future. The symbol of the cross predates Christianity. That earlier peoples understood the deeper

occult significance of these two axially different movements may well be the reason why the Cross has long been held not only to be a symbol of spiritual perfection, but also of the sublime marriage between spirit (the father) and matter (the mother).

The feminine nature of physical substance is further affirmed by the fact that the two words matter and material, both have their root in the Latin word *mater*, meaning mother. Thus all physical elements of whatever kind (with the exception of oxygen and hydrogen) can be viewed as the progenitive essences of 'Mother-Earth' and therefore innately maternally-oriented. This explains more completely Viktor Schauberg's concept of the 'Mother-Substances' from which all physical structures, all new living entities, come into being through the marriage between these elementary substances and the inseminating spirit, predominantly oxygen.

This affords us an insight into what fire may actually be. Also associated with spirit, it is one of the four arcane, alchemical elements of earth, air, fire and water, and over the ages the quintessential nature of flame has long been the subject of much study and speculation by both chemist and alchemist alike. Frequently ascribed a purifying function, the physical effect of fire is to reduce a given substance to its elementary constituents; to its maternal potentialities, in a process which, from this point of view, could be described as 'de-insemination', namely the withdrawal of paternal potencies. This could also be interpreted as the retraction or release of spirit from matter, wherein light is again manifested in the form of flame as the departing spiritualising essences are freed from material confinement and rise once more to reunite with their spiritual origins - the Sun.

To return to the theme, however, it is these female fructigenic ethericities (subtle energies) in their outward spiralling desire for fertilisation that give rise to the generation of levitational energies. On their vortical ascent these forces draw up matter in their wake. In this way they are responsible for the expansion of the Earth-ovum, whose further outward movement is restrained by the

opposing forces of the Sun as sunlight and the atmosphere. The former exerts a mild pressure of about  $4\text{kg}/\text{km}^2$  and the latter of about  $10.683\text{ tonnes}/\text{m}^2$  or  $14.721\text{bs}/\text{in}^2$ , a large component of which is the weight of water vapour. The extent of the Earth's present diameter or girth is therefore the result of the attainment of an unstable state of equilibrium between these counter-directional forces. This echoes the assertion from the second quotation above, in which the great cold of space was described:

This cold is far more solid than steel, and it presses down upon the ether and the atmosphere with almost irresistible force and holds them together.

If, indeed, the above immense pressure is actually resisted by a levitational counterforce as Viktor Schauberger maintains, that it can expand at all suggests that, in keeping with all other globular cell-structures, the Earth is hol-lower than we presently think, which may be

the reason why it resonates like a bell when seismic charges are set off. Solid bodies do not resonate so readily. A similar, apparently unaccountable resonance was also detected on the Moon at the time of the lunar landings.

In his writings Viktor also refers to the Rig-Veda, the most ancient and most important of the four Vedas comprising the sacred Hindu scriptures, in which air battles are described that were fought from flying machines referred to as 'vimanas'. He suggests that not only were these machines powered with levitational energy, but that the forces of implosion and levitation were also known to the high priests of Atlantis. Moreover it was through their overstimulation by the priesthood that Atlantis was first torn upwards from the Earth, before being flung back, its levitational forces disintegrated, to create the basin that is now the Atlantic ocean, giving rise to the Great Flood recorded in the Old Testament and the myths of other peoples.

### Notes

1. I have given the Sun, the Earth and the Moon capital letters, for as living, spiritual entities, in my view they are as equally deserving of capitals as the rest of the planets, which are named after gods.
2. Guide to Science: 1 The Physical Sciences by Isaac Asimov, Chap.2, p.88, Penguin Books, Harmondsworth, England.
3. Published by Krystall Verlag, Vienna, 1934 - defunct in 1938.
4. The Loschmidt Constant or Loschmidt Number ( $N_L$ ) determines the number of particles per unit volume of an ideal gas at standard temperature and pressure and has a value of  $2.68719 \times 10^{25}$  particles per cubic metre. First calculated by Joseph Loschmidt (1821-1895).
5. The Awesome Life-Force by Joseph H. Cater: Cadake Industries, P.O.Box 9478, Winter Haven, FL, USA, 1984, ISBN 0-86540-274-0.
6. ISOTROPIC = Exhibiting equal physical properties or actions (e.g. refraction of light, elasticity, conduction of heat or electricity) in all. (Compact Edn. Oxford English Diet.)
7. The Lost Continent of Mu by James Churchward: Neville Spearman, London, 1959.
8. Volume 2, p.50: De Vorss, Marina Del Rey, CA U.S.A. ISBN 0-875516-085-9.

# THE EARTH'S ATMOSPHERIC ENVELOPE

## 6.1 The Atmosphere

Let us now come down to Earth as it were, and examine the planet on which we live.

We have seen how life, movement and energy are synonymous; therefore for life to exist on our planet, as anywhere else for that matter, there must be a number of natural processes and functions which promote the concentration of the energetic matrix within which physical life can evolve. According to Viktor Schauberger these are created by the 'original' motion of the Earth as it rotates about its own axis and circulates its bio-magnetic and bio-electrical energies through itself during its 365.26-day, orbital waltz around the Sun.

Contrary to common belief the Earth is not actually a true sphere, but is slightly oblate. That is to say, there is a slight flattening at the poles. According to best measurements the polar diameter is 12,639.648km and the equatorial diameter, 12,682.176km, the latter being 42.688 km greater. Due to the effect of centrifugal forces acting on the greater land-masses of the northern hemisphere, it bulges slightly more above the Equator, making the world pear-shaped, the southern hemisphere being the more 'pointed' end.

This has the effect of displacing the Earth's centre of gravity marginally north of true centre, producing the so-called 'Chandler Wobble', which is akin to the wobble of a spinning top. One revolution of this wobble takes 26,000 years to complete and in the process causes a variation in the inclination of the Earth's axis to the ecliptic, the plane in

which all the planets orbiting the Sun lie, with the exception of Pluto.

Viktor viewed the Earth as a living organism, a being possessed of intelligence. The word 'organism' actually originates from Aristotle's concept of 'Organon', meaning an 'instrument of reason'. This throws a whole new light on everything we consider organic, in that all physical forms are seen to be the creation of mind or an ordering principle. As an animate being, the Earth also breathes, pulsating its fundamentally female energies outward in tune with its gyration and in response to the energy received from the Sun.

This concept of a breathing planet is not new. The word 'atmosphere' and its associated concepts are interesting and originate inter alia from the Ancient Greek and Sanskrit. From the Oxford English Dictionary<sup>1</sup> we discover the following meanings, opinions and data, which are relevant to the discussion that follows. Words in bold type are to draw the reader's attention to their further significance.

### Atmosphere

GREEK: **ATMOS** = Vapour  
**SPHERE** = Ball.

SANSKRIT: **ATMAN** = Breath

OLD HIGH GERMAN: **ATUM** = Breath

1) The spheroidal gaseous envelope surrounding any of the heavenly bodies. The name was invented for the ring or orb of vapour or 'vaporious air' supposed to be exhaled from the body of a planet, and so to be part of it, which the air itself was not considered to be. It was extended

to the portion of surrounding air occupied by this, or supposed to be in any way 'within the sphere of activity' of the planet (Phillips 1696) and finally, with the progress of science, to the supposed limited aeriform environment of the Earth, or other planetary or stellar body. (It is curious that the first mention of an atmosphere is in connection with the Moon, now believed to have none.)

2) 1677 PLOT: That subtle Body that immediately incompasses the Earth and is filled with all manner of exhalations, and from thence commonly known by the name of the atmosphere.

3) 1751 CHAMBERS: Among some of the more accurate writers, the atmosphere is restrained to that part of the air next the Earth, which receives vapors and exhalations and is terminated by the refraction of the Sun's light.

4) 1867 E.DENISON ("Astronomy without Mathematics"): The Earth's atmosphere decreases so rapidly in density, that half its mass is within 3.5 miles above the sea; and at 80 miles there can be practically no atmosphere.

5) 1881 STOKES: In the solar atmosphere there is a cooling from above.

6) 1727-51 CHAMBERS: Atmosphere of Solid or Consistent Bodies, is a kind of sphere formed by the effluvia, or minute corpuscles emitted from them.

7) 1871 EMERSON: A man should not go where he cannot carry his whole sphere or circle with him, not bodily, but atmospherically.

While several of these quotations underscore some of the comments made in the previous chapter about the Sun, in the main they affirm an apparently earlier held view that the Earth is a living organism, namely an entity that breathes. Viewed from outer space, the atmosphere itself could also be construed as the vital amniotic fluid that surrounds an Earth pregnant with life, in which it floats and which shields it from the potentially destructive forces of the Sun and Cosmos.

When the Earth was first formed, supposedly from a molten mass of condensing gases, it is believed to have been totally covered by water before the dry land eventually came into being. Apart from volcanic emissions, in the main these 'vaporous

exhalations' are the water vapour present in the atmosphere. Due to the heating effect of the interaction between solar radiation and atmosphere, the water covering the Earth's surface gradually evaporated and became dispersed through the atmosphere, ultimately charging the atmospheric envelope with water vapour, though mainly in the troposphere which extends to an altitude of about 6km at the poles and 18km at the equator. According to H.L. Penman's paper, "The Water Cycle"<sup>2</sup>, water has the greatest specific heat known among liquids (=1) and also has the greatest thermal conductivity of all liquids, whereas iron, which heats and cools more rapidly, has a far lower specific heat of 0.107.

Its great specific heat means that, for a given rate of energy input, the temperature of a given mass of water will rise more slowly than the temperature of any other material. Conversely, as energy is released its temperature will drop more slowly.

Owing to its high specific heat and its capacity to retain heat, the water vapour gradually absorbed the heat of the Sun, and in doing so raised the general level of temperature. Because it absorbs heat strongly in the infrared portion of the spectrum and is transparent to (i.e. unaffected by) ultraviolet light, during the night when there is no heat input, heat losses are kept to a minimum. Had water not this capacity, if this water vapour buffer did not exist, then the Earth would have remained cold, lifeless and barren. Water, initially in its vaporious form, is therefore responsible for the emergence of all life.

When water vapour reaches extreme altitudes, however, it then becomes so rarefied that it is dissociated into its constituent atoms of oxygen and hydrogen through the action of strong ultraviolet radiation. Being the heavier element, the oxygen then sinks back to Earth, while the lighter hydrogen atoms rise to rejoin their peers in space. Now separated from the hydrogen, the oxygen is exposed to high levels of ionising radiation through which the now single oxygen atoms are made to combine with the molecular oxygen (O<sub>2</sub>) into an allotropic form of oxygen, O<sub>2</sub> or ozone, which is responsible for the absorp-

tion of otherwise dangerous levels of ultra-violet radiation, a process which is vital for all life on Earth. The result is a net loss of water. The greater the amount of water vapour propelled into the atmosphere through the overheating resulting from excessive deforestation, the greater the consequent losses; losses indeed that can never be recovered (see pp. 121 & 123).

What differentiates water from all other liquids, a factor that will be discussed in more detail later, is its so-called 'anomaly point' or 'point of anomalous expansion'; that is to say, water's volume does not decrease continually with increasing cold. Its behaviour is anomalous, and hence the term 'anomalous expansion' or 'anomaly point'. This point of reversal is reached when the water attains its greatest density and energy content at a temperature of  $+4^{\circ}\text{C}$ , below which it eventually crystallises as ice at  $0^{\circ}\text{C}$ , a process greatly assisted if so-called 'impurities' are present which provide the nucleus around which the ice forms. Another important factor is water's dielectric value. The base dielectric value for calculating all other values is based on the permittivity of a vacuum and has a value of 1. Permittivity is the extent to which a substance can be penetrated or traversed by an electric current or charge. Apart from a vacuum, a dielectric can be formed of an electrically neutral, interstitial membrane separating positive and negative electric charges, i.e. a non-conducting substance such as paraffin wax.

The dielectric value of pure water (distilled water) is 81 ( $=9^2$ ) and is therefore 81 times more effective as a charge separator than a vacuum and almost the highest dielectric value there is.  $1\text{ mm}^3$  of the purest water at room temperature, for example, has an electrical resistance equal to a  $1\text{ mm}^2$  copper wire, 15,000,000km long. It thus possesses a tremendous innate resistance to the transfer of charge. Pure water will only freeze at temperatures of around  $-40^{\circ}\text{C}$  or in clouds at about  $-10^{\circ}\text{C}$ , which again is fairly important, as we shall discover later. In comparison with a temperature of  $-273.15^{\circ}\text{C}$  (= absolute zero or  $0^{\circ}\text{Kelvin}$ ), supposedly the lowest possible

temperature to be found anywhere in the Universe, the temperature of  $0^{\circ}\text{C}$ , or freezing point, is relatively warm.

Lying between approximately  $+40^{\circ}\text{C}$  and  $-10^{\circ}\text{C}$ , the temperature range in which we live is not very large. In fact it is a fairly narrow band-width between extremes to which we are not normally subjected. Our radius of action, our living space, as it were, lies within the upper and lower boundaries of the troposphere, itself a stratum or 'sphere' within the overall atmospheric envelope and defined by temperature and water vapour content.

To glean more facts about the structure of the atmosphere, from the Phaidon Concise Encyclopedia of Science and Technology<sup>3</sup> we are provided with the classifications shown in fig. 6.1, which should be viewed in conjunction with fig. 6.2. My own questions and comments are printed in bold type.

## 6.2 The Terrestrial Bio-Condenser

**K**eeping in mind water's dielectric value of 81 and its enormous resistance to the transfer of charges, let us now examine the thermal structure of the atmosphere (fig. 6.2), for this may explain to us another way in which, apart from the accumulation of heat, the Earth could become charged with life energy.

The portion of the atmosphere most important to us and which affects us most is the troposphere, which from fig. 6.2 can be seen to terminate at the tropopause between 6km and 18km up. Curiously enough, we also find that the temperature neither decreases nor increases constantly (shown as wavy broken line), but fluctuates as we ascend through the various atmospheric layers, so that at a certain altitude, at 29km for instance, the temperature is  $-60^{\circ}\text{C}$ , whereas at a height of 80km it is  $+10^{\circ}\text{C}$ . Somewhere between these two temperatures, therefore, there is a layer where the temperature is  $+4^{\circ}\text{C}$ . According to my calculations there are at least four such levels where the temperature equals  $+4^{\circ}\text{C}$ , at altitudes of about 3.5km, 77km, 85km and 175km.



EXOSPHERE:	The outermost layer of the Earth's atmosphere extending from about 400km-500km above the Earth's surface, where terrestrial gravitation is too weak an effect to prevent the escape of uncharged particles.
THERMOSPHERE:	An atmospheric layer lying between the mesosphere and the exosphere, reaching an altitude of about 400km, where the temperature is over 1000°C. [Is this thermal or kinetic? - CC]
IONOPAUSE:	The transitional zone in the atmosphere between the ionosphere and the exosphere about 644km (400 miles) from the Earth's surface.
IONOSPHERE:	A region of the Earth's atmosphere extending from about 60km to 1000km above the Earth's surface in which there is a high concentration of free electrons formed as a result of ionising radiation entering the atmosphere from space.
F-REGION:	150km-1000km. Highest proportion of free electrons and most useful for long-range radio transmissions, also called the Appleton Layer. [+4°C stratum at about 175 km-CC]
E-REGION:	90km-150km. Reflects radio waves of medium wavelength, also called the Heaviside Layer. [+4°C stratum at about 85km - CC]
D-REGION:	60km-90km. Lowest region of the ionosphere - Low concentration of free electrons and reflects low-frequency radio waves. [+4°C stratum at about 72km - CC]
MESOPAUSE:	The zone of minimum temperature between the mesosphere and the thermosphere.
MESOSPHERE:	The atmospheric layer lying between the stratosphere and the thermosphere characterised by a rapid increase in temperature with height. The atmospheric zone immediately above the stratosphere marked by a temperature maximum of +10°C between altitudes of 48km and 53km.
STRATOPAUSE:	The transitional zone of maximum temperature between the stratosphere and the mesosphere.
STRATOSPHERE:	The atmospheric layer lying between the troposphere and the mesosphere in which the temperature generally increases with height. The atmospheric zone immediately above the tropopause, including the Ozone layer.
TROPOPAUSE:	The plane of discontinuity between the troposphere and the stratosphere characterised by a sharp change in the lapse rate <sup>4</sup> and varying in altitude from about 18km (11 miles) above the equator to 6km (4 miles) above the Poles.
TROPOSPHERE:	The lowest atmospheric layer about 18km thick at the equator and 6km thick at the Poles in which air temperature decreases with height at about 6.5°C/km. Most meteorological phenomena occur in this layer. The innermost zone of the Earth's atmosphere extending from the surface to the tropopause.

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Fig. 6.1 The Structure of the Atmosphere

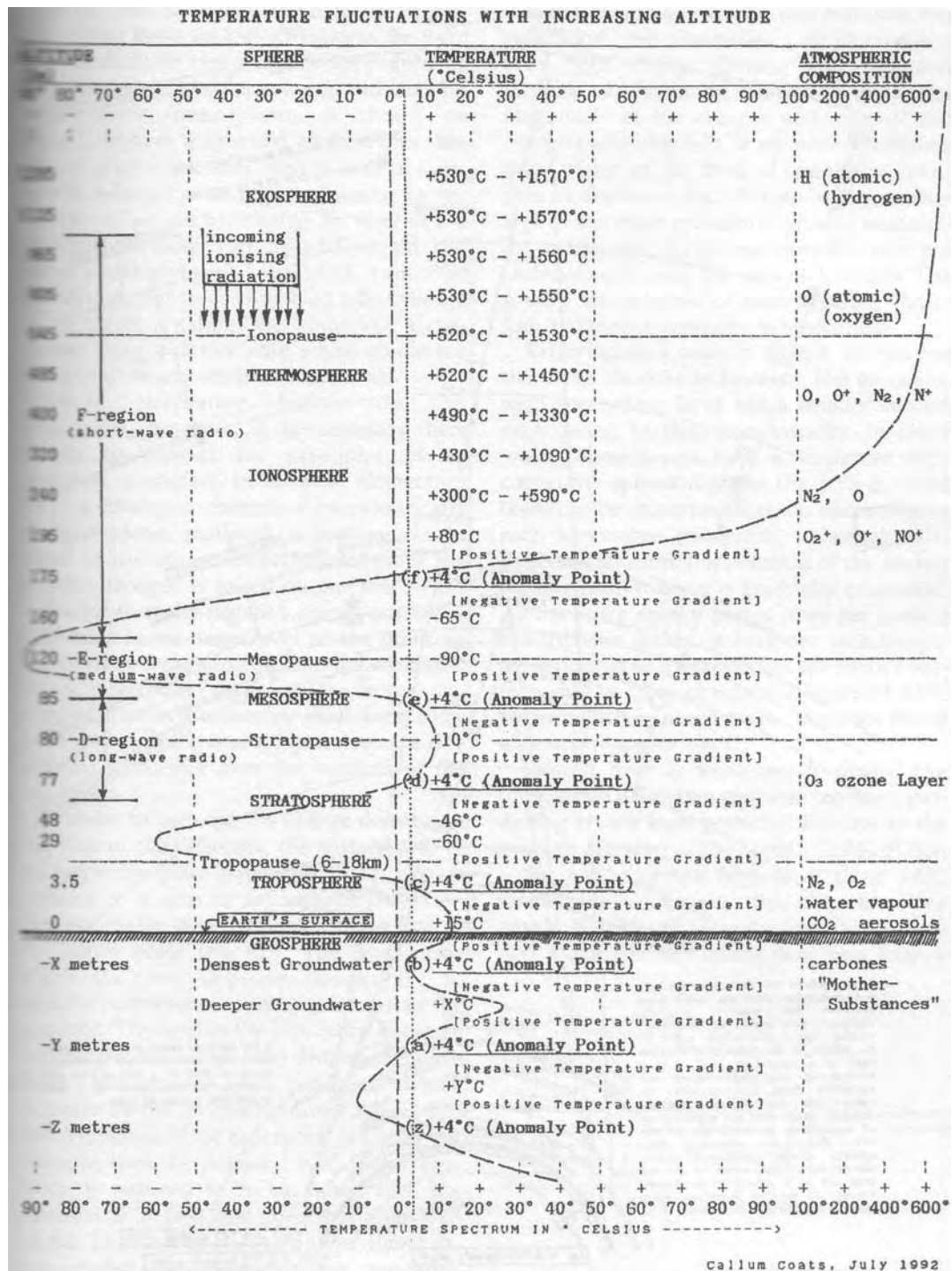


Fig. 6.2 Section through Earth's atmosphere showing temperature fluctuations

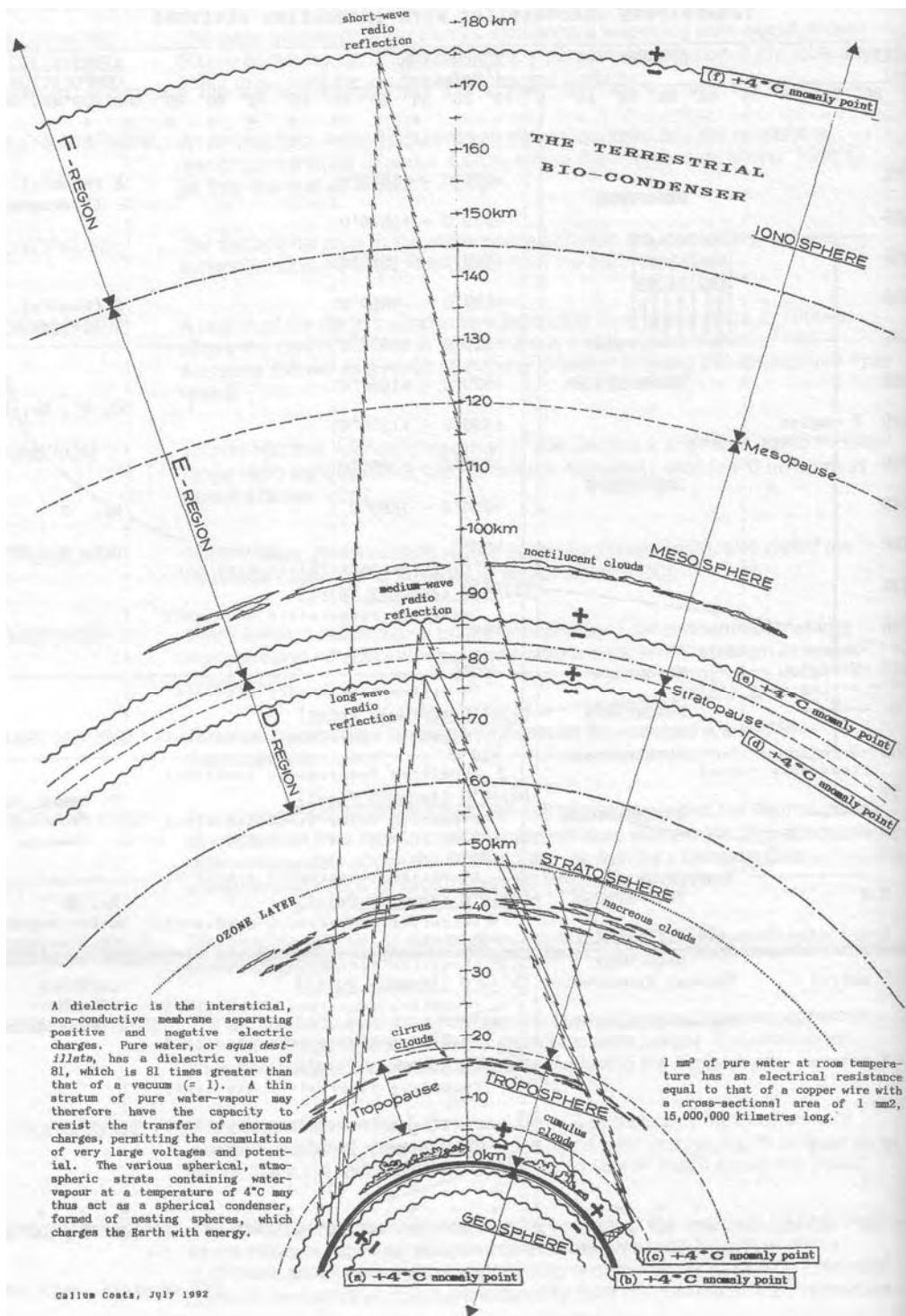


Fig. 6.3 Earth's inner atmosphere showing possible levels for natural bio-condensers

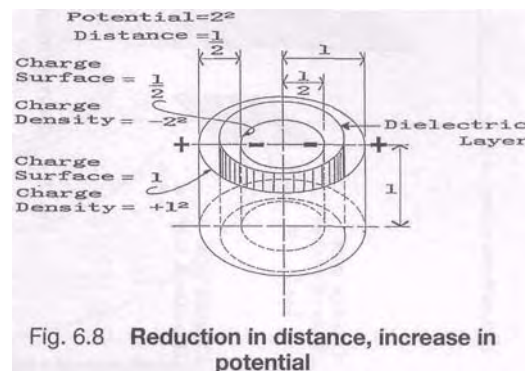
Since there is water vapour in the atmosphere near these various altitudes in the form of cumulus and cirrus clouds (troposphere), nacreous clouds (stratosphere) and noctilucent clouds (mesosphere) as shown on fig. 6.3, we have a situation where a thin stratum of pure water may exist at each of these levels, which has a high resistance to the transfer of an electric charge. In view of the presence of these various  $+4^{\circ}\text{C}$  strata and water's high dielectric value of 81, it could be postulated that their combined effect would act to create a natural bio-condenser, a condenser being a device with which an electric charge can be accumulated and stored. Before elaborating further on this hypothesis, however, it is necessary here briefly to explain the principles of an electrical condenser. In its most elementary form, a condenser consists of two electrically charged plates, one with a positive charge equal to the other's negative charge. If the positive charged is raised on one side of the dielectric then the negative charge automatically rises to the same level on the other. In fig. 6.4 these two charged plates are separated by the intervening dielectric (the largest element), which in this case we shall deem to be pure water. The charges themselves are distributed uniformly over the surfaces of the two plates.

In order to increase the charge density on one side of the dielectric, the surface area of the respective plate is reduced. If this plate is reduced to a quarter the size of the other, then its charge density is four times that of the larger plate (fig. 6.5). The force with which the two opposite charges try to equalise or attract each other is known as the potential. The smaller the separation between the charges, the smaller the distance between them, the greater the potential, which increases by the inverse square of the separation. Therefore, if the separation is 10mm, for example, then the potential is  $1^2$ . If the separation is reduced to  $1/2$  i.e. 5mm, then the potential is  $2^2 (=4)$  and so on, as shown in fig. 6.6. The smaller the separation, therefore, the greater the corresponding potential, which could be unleashed once the permittivity of the dielectric has been overcome.

If the charge surface on one side and the separation are decreased simultaneously, then both charge density and potential increase exponentially relative to the initial magnitude of the charges and sizes of the charge-plates (fig. 6.7). If we now recompose these plates in the form of concentric cylinders as shown in fig. 6.8, then as the surface area of the inner cylindrical plate is necessarily smaller, the charge and potential increase automatically from the outside inwards. The greater the number of nested plates, therefore, the more intense the potentiation.

Referring once more to fig. 6.3, we can see that from the outside inwards, like an onion, each succeeding layer has a smaller surface area owing to their concentricity. In other words, these layers form a condenser with concentric spherical plates (fig. 6.9). It could therefore be construed that, on encountering each successive, concentric, spherical  $+4^{\circ}\text{C}$  dielectric stratum, the potential of the energy coming from the Sun is gradually magnified. As the Sun's energy passes from the outside towards the inside, it becomes increasingly concentrated as it approaches the Earth's surface, due to these enveloping layers of  $+4^{\circ}\text{C}$  water, which as noted earlier does not freeze at temperatures of  $-40^{\circ}\text{C}$ .

Viewed from a more cosmic perspective these strata are extremely close together, producing a very high potential. Relative to the average diameter of the Earth - 12,660.912km - the height of the highest of these  $+4^{\circ}\text{C}$  strata represents only 0.0138%. In other words, if the Earth were depicted as a sphere with a diameter of 1 metre, then these four or



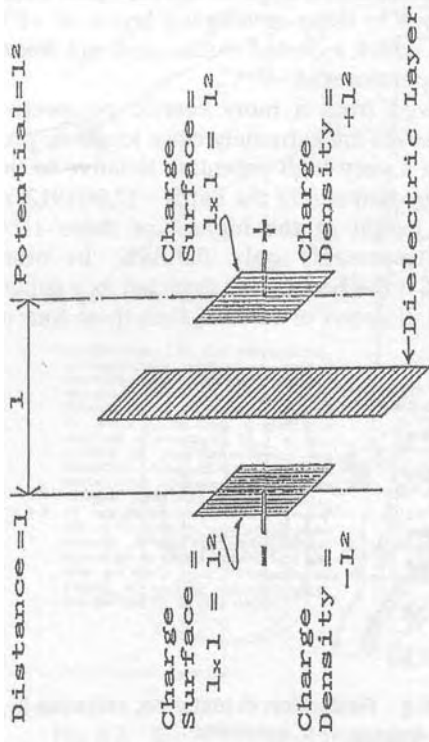


Fig. 6.4 Conventional condenser principle

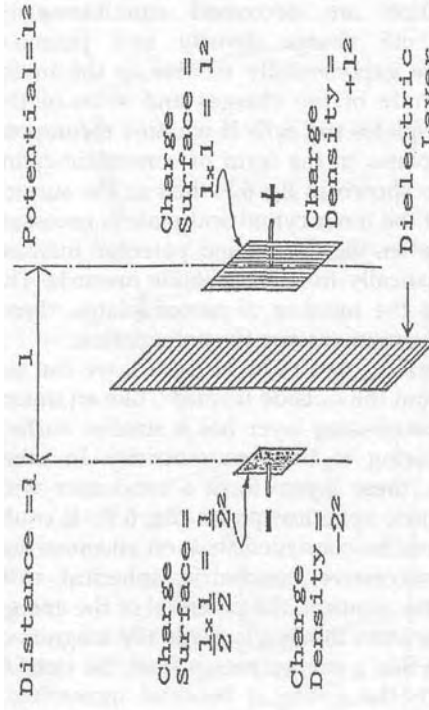


Fig. 6.5 Increase in charge density

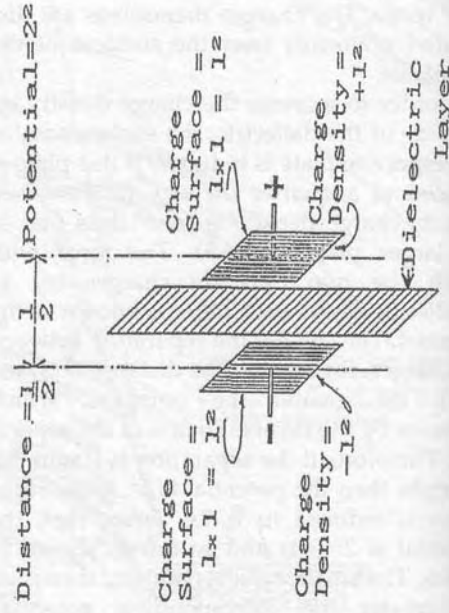


Fig. 6.6 Increase in potential

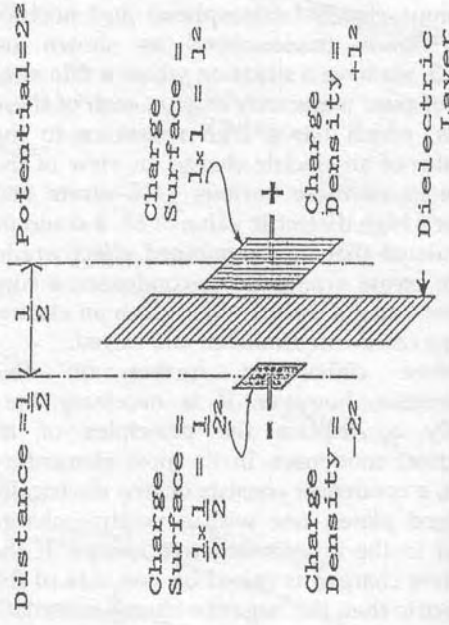


Fig. 6.7 Increase in charge density and potential

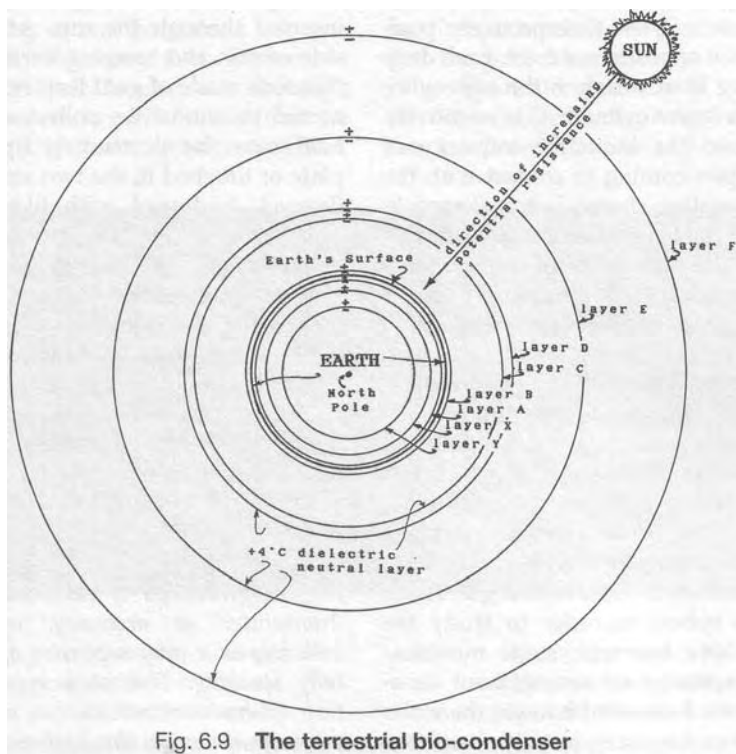
so strate would lie within 13.8mm of the surface. From this arises the concept of the Earth as an accumulator of energy within whose volume a charge is progressively built up. This accumulation of energy naturally enhances the emergence of life because, without energy without differences in charge, gender, potential or a suitable energy field any form of life is impossible. As charge-resisting layers, these mooted dielectric strata could also in part contribute to the reflection of long, medium and short-wave radio transmissions from different altitudes as shown on fig. 6.3, normally attributed to different ionisation levels for in each of the so-called D-, E- and F-regions water vapour is present at different densities. Being in a lower dynamic and more harmonically stabilised energetic state, the greater density of water vapour at increasingly lower altitudes may well correspond through resonance to the lower wavelengths of the incident radiation, whose frequency has been reduced by contact with the braking effect of

the atmosphere, thus creating the medium with which radio-waves are reflected back to Earth.

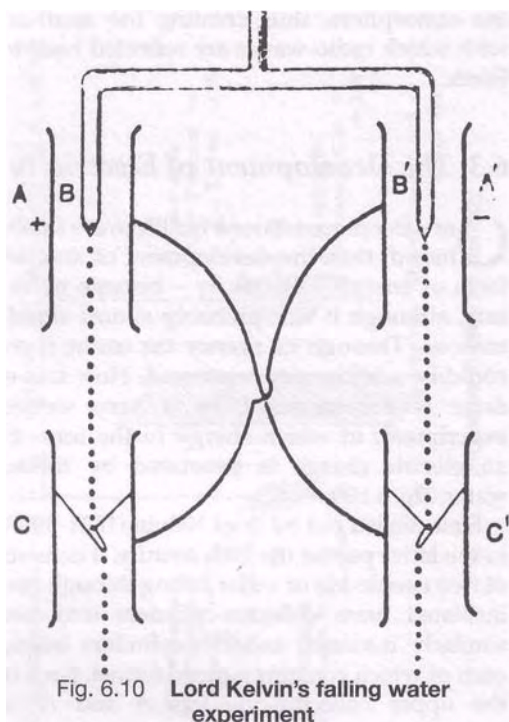
### 6.3 The Development of Electricity

Once the preconditions for life were established, then the development of another form of energy - electricity - became necessary, although it was probably almost simultaneous. Through its agency the ozone layer could be additionally reinforced. How this is done is demonstrated by a very simple experiment, in which energy in the form of an electric charge is generated by falling water (fig. 6.10<sup>5</sup>).

First carried out by Lord Kelvin (1824-1907) in the latter part of the 19th century, it consists of two needle-jets of water falling through two insulated brass collector-cylinders into two similarly insulated collector-cylinders below, each of which contains a metal funnel. Each of the upper collector-cylinders A and A<sup>1</sup> is







connected diagonally via an insulated rod to collector-cylinders  $C^+$  and  $C^-$  respectively, positioned under the opposite water-jet. Each drop of water falling from nozzle  $B$  through cylinder  $A$  towards lower cylinder  $C$  is negatively charged, due to the inductive influence of cylinder  $A$ . Upon coming in contact with the funnel, this negative charge is transferred to cylinder  $C$  and the water drains away through the bottom of the funnel free of charge. Since cylinder  $C$  is connected to upper cylinder  $A^+$ ,  $A^+$  also becomes negatively charged. Now negatively charged, cylinder  $A^+$  induces a positive charge in the water falling from nozzle  $B^+$  into cylinder  $C$ , thus reinforcing the positive charge in cylinder  $A$  via the insulated diagonal connection, the combined effect of which is a constant increase in both positive and negative charges which may well be without limit. In 1937 this experiment was also carried out by Walter Schauburger in Nuremberg at Viktor Schauburger's behest in order to study the energies in water, but with some modifications to the experimental arrangement vis-à-vis Lord Kelvin's. Instead of funnels, the water fell into collector-vessels heavily insulated

with paraffin wax to prevent any charge leakage to earth. These vessels are labelled  $V^-$  and  $V^+$  on the apparatus I built shown in fig. 6.11, and each contains a brass strip diagonally connected with an insulated copper rod to the respective insulated, hollow collector-cylinders denoted by  $C^-$  and  $C^+$ . Instead of the finest hypodermic needles at  $A$  and  $B$ , which I used to create the jet, Viktor Schauburger used needle-jets in which the configuration and volume of flow could be adjusted by the extent to which the central needle was inserted through the jet. With very fine adjustment, the water could be made to stream out in spirals around the needle tip, endowing it with a greater energetic potential.

In order to detect the presence of an electrically charged field, an electroscope is required, the first of its kind being invented by Professor Wilhelm Exner at the University of Vienna, which he lent to Viktor Schauburger for his Nuremberg experiments. Exner's electroscope consisted of a cylindrical metal casing sealed with glass at each end into which a thin flat metal plate, insulated from the surrounding metal casing, was inserted through the top. Attached to each side of this and hanging vertically were two thin foils made of gold leaf. When a wire connected to one of the collector-cylinders was held near the protruding tip of the metal plate or touched it, the two strips of gold leaf flapped. Endowed with like charges, they repelled one another. Upon touching the metal casing at their furthest extent, the charges were earthed and gold-leaf foils once more hung vertically.

The structure of water is formed of dipole molecules (molecules with negative and positive poles) and when falling each of the water droplets generates a charge. To give a more detailed idea of a dipole let me quote from H.Lindner's book, *Das Bild der Modernen Physik*<sup>6</sup> (fig. 6.12).

For the generation of electromagnetic waves a 'transmitter' is necessary, which in many instances is a very expensive apparatus technically speaking. That such apparatuses, despite their diverse construction, can propagate electromagnetic waves, in the final analysis is founded

on one feature only: Electrical charges are forced to perform accelerated movements. Electrons are usually employed for such purposes. They pendulate to and fro in oscillating circuits created by coils and condensers. The particular part of the apparatus in which the waves are generated, contained an open oscillating circuit, which is so constructed that the fields evolving within it are radiated into space via the attached antenna. Let us take a simple example and one of a type Heinrich Hertz also used in his experiments. This consists of a metal rod with a sphere at each end. The electrons, which were originally distributed through it uniformly, will subsequently be stimulated into rapid oscillation, into an alternating current of the highest frequency by the remote emitter. What happens in the vicinity of this dipole emitter is shown in the diagram below and is briefly described in the following:

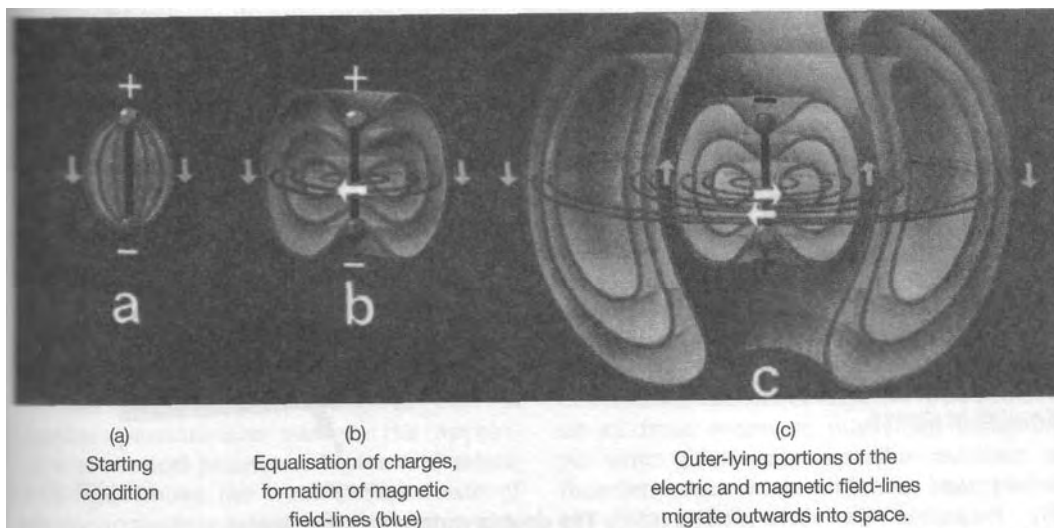
1. Each end of the dipole is either positively or negatively charged. In the same way as occurs between the plates of a condenser, an electric field is propagated between them. This extends much further into space than can be shown in the diagram.
2. The charges equalise, the electrons flow through the connecting rod towards the positive pole. This swelling current generates a magnetic field, during which the electric field disappears in the vicinity of the dipole. In relation to Maxwell's equation, it can just as well be said that the changing electric field creates the magnetic field.

3. After completion of the charge equalisation, the electric field has vanished. The widely extended magnetic field has reached its maximum strength.

4. The spheres at the poles become oppositely charged, plus becomes minus and vice versa. The magnetic field begins to disappear, a new electric field evolves with reversed polarity, ultimately regaining its original strength.

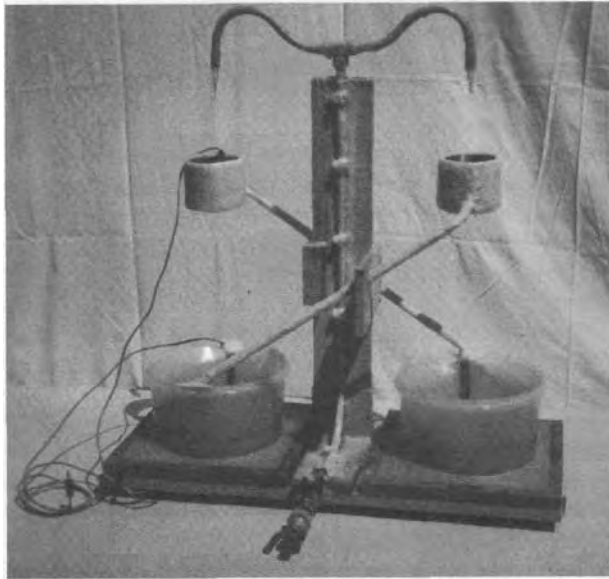
Incidentally, this also explains more graphically why the Sun's poles swap over every 11.2 years as mentioned in chapter 5. The Earth's poles are also known to have shifted periodically, the mechanics of which are the same and the way the electric fields shown in fig. 6.12c come into being is virtually identical to the formation of the Van Allen radiation belts surrounding the Earth in fig. 4.14.

But to return to the theme in hand, for the same reason that the gold leaf foils of the electroscope diverge, the fine jet of water particles soon splits apart as the charge intensifies and the negative or positive field builds. Finally the electric field, generated in and filling the space below the jets, becomes so great that the particles are forced to rise (fig. 6.11). When the water pressure is very slight and after the charge has built up, no falling water can be heard, nor is any seen below the

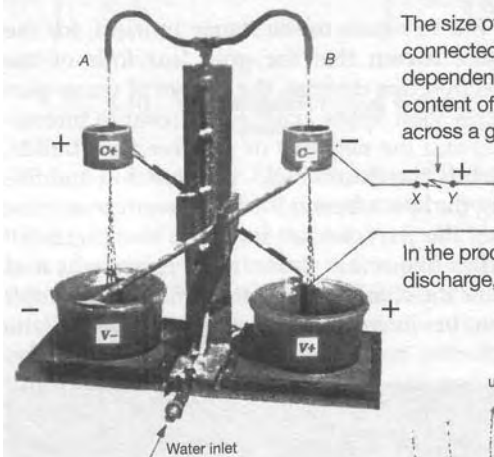


**Fig. 6.12 The formation of electro-magnetic waves in the vicinity of an oscillating electric dipole**





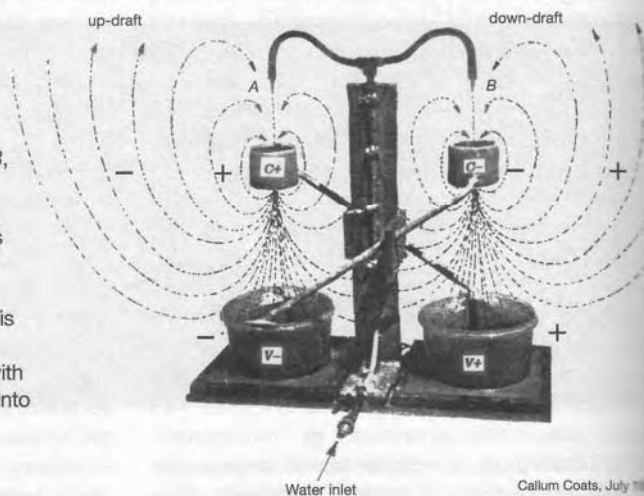
Water, expressed from a very fine needle, falls from jet A through an open-ended insulated brass-foil cylinder C+ into an insulated collecting vessel V-, incorporating a charge collecting brass strip. It is assumed that cylinder C+ is positively charged and as the fine water-droplets pass through it, they are endowed with a negative charge, imparting this charge to the collector strip in vessel V-. This negative charge is then passed on to cylinder C- via an insulated copper rod, imbuing it with a negative charge. As the water from jet B falls through negatively charged cylinder C-, it receives a positive charge, which is passed to cylinder C+ via the collector strip in vessel V+. The charge in each collector vessel constantly intensifies the charge in the diagonally opposite cylinder.



The size of the discharge between terminals X and Y, connected to cylinder C- and vessel V+ respectively, is dependent on a combination of altitude and the moisture content of the atmosphere. As a rule of thumb, a discharge across a gap of 1mm represents 2,000 volts.

In the process of such an electric discharge, ozone  $O_3$  is created.

The water-droplets falling from jets A and B, are endowed with positive and negative charges respectively. As like charges repel each other, each of these droplets migrates away from its neighbours, resulting in their splayed, outward distribution through the positively or negatively charged fields. In this ionised state, they begin to rise upwards, those water droplets nearest the cylinder with the opposite charge, being attracted back into the water-jet above it.



**Fig. 6.11 The double water-jet experiment**

First carried out by Lord Kelvin at Cambridge, England in the 1890's and later by Walter Schauburger at Nürnberg, Germany in 1938.

upper collector-cylinder. However, when holding one's hand about 50cm away from the jet, after a while icy-cold pin-pricks can be felt as the droplets encounter the skin and discharge into it. An insulated high-tension lead can be connected to each collector-cylinder and when the ends of the two leads are brought closely together, a spark suddenly jumps between them, which can be in the order of 60,000 volts. The rule of thumb for determining the magnitude of the charge is 2,000 volts per millimetre jumped. With the device that I built, a charge was generated sufficient to arc across a gap of 2 cm, producing a sharp snap as a result of the passage of about 40,000 volts. This relatively large charge was generated by an extraordinarily small quantity of falling water.

This explains, for instance, why rainwater is much more productive, regenerative and growth-enhancing than irrigation water. While rainfall does not always culminate in a discharge of lightning, which depends (as discussed later) on the prevailing conditions and density of water vapour, as this little dipole falls, it rotates, building up both an electric and a magnetic, or bio-magnetic field, the formative energetic field. When this now highly-charged raindrop encounters a living organism, in this case a leaf, its accumulated energy is discharged into the plant and is made directly available for the plant's use. This is the reason for the more vigorous reaction of plants to rainwater vis-a-vis irrigation water, because the latter does not have the same fall-distance, and therefore cannot accumulate any significant charge.

If this experiment is carried out in the dark, then with a powerful torch, the water droplets can be seen to rise upwards above the upper collector-cylinders. If horizontally disposed spirals of copper rod are installed in lieu of the upper collector-cylinders, this apparently gives rise to another phenomenon namely the appearance of vertical plumes of bluish and white, cold light above the water-jet the result of intense ionisation and the horizontal propagation of a reddish glow below the copper

spirals. The blue light is associated with bio-magnetism - the upbuilding, levitational life-energy - and the reddish light is the product of electricism and has a degenerative effect.<sup>7</sup>

Apart from his interest in the actual generation of charges, Viktor Schauberger also made use of this apparatus to test the quality and vitality of water. One litre of good, mountain springwater had to pass through the needle-jets about 150 times before the gold-leaf foils ceased flapping. Experimenting with varying water temperatures he also found that at +37°C the oxygen in the water became aggressive and the water almost undrinkable. Its charge also decreased with increase in temperature. Whether the colour of the ionised glow described above, similar to the Aurora Borealis, varied with temperature, has not been reported. One could however assume with some confidence that different temperatures would produce different emanations.

## 6.4 Storms, Water Vapour and Climate

This experiment has many implications. It shows, for instance, that as a result of the gradual accumulation of water vapour, the atmosphere became sufficiently saturated to permit the aggregation of individual water molecules into macro-molecules, or rain-drops. In the process of falling, these droplets of water generate a charge, and suddenly the phenomenon of electricity appears in the form of lightning. All at once a form of pure energy is made available for the planet's use.

In the course of an electrical discharge, ozone is created and, due to the often intense temperature- and ionisation-induced, high-velocity updrafts in thunderstorms, this ozone can be borne aloft to form or reinforce the ozone layer, which protects us all from excessive ultraviolet radiation. At any given moment the number of thunderstorms world-wide has been placed at about 1880 with an estimated 100 lightning strikes per minute. At an

average of 15,000,000kw per strike, this amounts to 1,500,000,000kw/min or 13,000,000,000kw/hrs per year<sup>8</sup>.

Lightning strikes can be up to 9km long and sheet lightning can extend up to 100km. All of these strikes are associated with the production of ozone due to the intense ionisation caused by the electrical discharge. In view of the fact that thunderstorm clouds can reach altitudes as high as 12km or so and contain extraordinarily powerful upcurrents, as demonstrated on a small scale in the experiment described above, it is possible that this newly produced ozone is carried up to augment the protective ozone layer.

If thunderstorm activity should decline, however, then this contribution will also drop commensurately. Indeed, over recent years the author has noticed a fall in the usual number of thunderstorms in the area where he lives and it may well be that this is a trend world-wide. Should this be the case, then it may have serious consequences for us all. Remembering that the water molecule is a dipole, for rain to produce an electrical discharge the water particles must be very fine in order to be able to spin fast enough to generate a high charge.

According to research by Kenneth S.Davis and John Arthur Day<sup>9</sup> the amount of water evaporated annually from the oceans amounts to about 333,000km<sup>3</sup>, the contribution from lakes, river and land surfaces being in the order of 62,000km<sup>3</sup>; the latter representing 18.6% of the total of 395,000km<sup>3</sup> that returns to Earth as rain every year. Relative to the total area of rivers and lakes, the land surfaces covered by forest are far greater and therefore the major part of land evaporation is derived from the forest. As a percentage of the whole the contribution from the forest is therefore critical to the maintenance of stable climatic conditions.

However, owing to our massive deforestation activities, principally for agriculture and beef production, the area of natural forest has decreased enormously from its original state. This massive enlargement of hot, sun-exposed surfaces has resulted in an enormous increase in the evaporation rate, which

has been greatly assisted by an increase in temperature caused by the effects and products of our technology. A 1°C rise in temperature causes the retention, but not necessarily an even distribution, of an additional 1,000 million cubic metres of water vapour in the atmosphere.

In consequence the whole of the Earth's water balance has been seriously disturbed, resulting in very disorderly agglomerations of atmospheric water; a fact we are daily made aware of. In some places there is an overload, causing repeated catastrophic rainfall and large-scale inundation, such has been occurring in recent years in Bangladesh, while in others there is little or none at all, i.e. severe drought conditions prevail, as in the Sudan and Ethiopia, all of which are associated with extreme suffering and enormous loss of life. Due to the sheer volume of excess water vapour, instead of the creation of the small water particles mentioned above, much heavier drops are formed which fall as deluging rain and generate considerably lower charges.

In many such rainstorms, cyclonic and monsoonal storms there is no thunder at all. While this additional water vapour will increase the general atmospheric temperatures, due to the movement of the upper air streams it graduates towards the poles, there to fall as snow, adding to the volume of water fixed almost permanently as ice. Moreover the area of cloud cover also increases owing to this abnormal water-vapour content, which in turn amplifies the so-called albedo effect of the Earth. The albedo is the term for the overall whiteness of the Earth's atmosphere caused by the reflection of light off the white cloud areas. This obscures the Sun's rays and prevents the water vapour below the clouds from being further warmed.

On the other hand, as most of the water vapour has been accumulated in the clouds, where there are none relatively little vapour is present and so the Sun, where it can shine through, no longer warms the atmosphere. Assisted by the increasing pressures in the lower atmosphere caused by the temperature-induced expansion of abnormal

quantities of water into vapour, more and more water-molecules are forced to higher altitudes, there to be subjected to the dissociative processes mentioned earlier and the irredeemable loss of water increases. In

the long-term all of these effects act to reduce the general ambient temperatures and the presence of atmospheric water and while initially the temperature in parts of the Earth will rise, in the end it will inevitably cool off dramatically as the precursor to a new ice-age.

Historically no-one has ever experienced the initial stages of an ice-age. But perhaps the recent, totally unseasonal fall of snow in

Australia at Christmas 1993 (hottest time of the year) is the first outstretching of the icy tentacles of an incipient ice-age. Viktor Schauberger already foresaw all this in 1933, long before anyone had any idea of global warming, and described it in detail in his book *Our Senseless Toil - The Source of the World Crisis*. The major causes in his view being the overclearing of the forest, coupled with heavy-handed, mechanistically-oriented agricultural practices and unnatural, misguided systems of water resources management, all of which are due to a total incomprehension of natural energies and processes.

### Notes

1. The Compact Edition of the Oxford English Dictionary:

Oxford Univ. Press, Oxford, 1980.

2. "The Water Cycle", The Biosphere, Scientific

American, 1970: W.H. Freeman, New York, U.S.A.

3. Phaidon Concise Encyclopedia of Science and Technology, © 1978 Andromeda Oxford Limited, 11-15 The Vineyard, Abingdon, OX14 3PX, England.

4. *ibid.*. LAPSE RATE: The rate of change of any meteorological factor with altitude, especially temperature, which usually decreases at a rate of  $0.6^{\circ}\text{C}$  per 100 m (environmental lapse rate). Unsaturated air

loses about  $1^{\circ}\text{C}$  per 100m (dry adiabatic(\*) lapse rate), whereas saturated air loses at an average of  $0.5^{\circ}\text{C}$  per 100m (saturated adiabatic lapse rate). *ibid.*. (\*) ADIABATIC: Of a thermodynamic process

occurring without loss or gain of heat.

5. Electricity & Magnetism, Cambridge Univ. Press, 1908.

6. Das Bild der Modernen Physik by H.Lindner, p.108, fig. 51/1, "The formation of electromagnetic waves": Urania-Verlag, Leipzig, Germany.

7. Why blue above the red below one might ask?

For an explanation of the principles rather than the specifics we must refer to the table in figure 4.6, where we are reminded that gravitation, centrifuge, electricism, expansion, pressure and heat are all octavely related. It could thus be interpreted that as the dipole droplets fall due to GRAVITY they develop like ELECTRIC charges, giving rise to mutually repulsive PRESSURES. These in turn cause the CENTRIFUGAL axial->radial and horizontal EXPANSION of the ELEC-

TRIC field, which has a relatively low potential due to increased charge separation. In consequence it produces a discharge, whose colour lies at the lower frequency, longer wavelength, HOT end of the spectrum, i.e. red. We also know from fig. 4.6 (p. 63) that levitation, centripetence, magnetism, impansion, suction and cold are equally octavely related. As the continuing flow of spinning dipole molecules with like charges encounter the now fully developed electric field, they are repelled aloft in what might be described as an 'upward fall'. Along this longer U-shaped fall-path each gradually develops its MAGNETIC charge. As the BIOMAGNETIC field develops gravity rapidly gives way to LEVITY. Mutual attraction (SUCTION) increases, producing a CENTRIPETAL RADIAL->AXIAL IMPANSION that converges the coiling MAGNETIC lines of force into an accelerating LEVITATIONAL vortex. Reaching extreme intensity at the pinnacle of this vortex, a plume-like, high frequency, bio-magnetic, bluish-white, COLD light soars upward as the bio-magnetic field discharges. In a sort of backhanded confirmation of this phenomenon, the human psyche appears already to have been unconsciously impressed with the respective colours of magnetism and electricism, because coloured diagrams in most text books show magnetic fields in blue and electric fields in red!

8. Leopold Brandstatter, Implosion statt Explosion, Self-publication, Linz 10, Fach 20, Austria.

9. Water - The Mirror of Science, by K.S.Davis & J.A. Day, p. 149: Heinemann Educ, London, 1964.

# TEMPERATURE

## 7.1 Other Forms of Temperature

**W**e shall now turn our attention to more familiar concepts of temperature. The movement of temperature in its eternal cycles is also the activator of life and death, of increase and decrease, decomposition and renewal. It is temperature, or rather the innate energies functioning under the banner of temperature, that produce the pulsations which punctuate and control all life's processes. We think of evolution as a continuous process, which it is on the whole, although it also has an important discontinuous aspect. If it were not for these energy pulsations which at one moment act to dissociate and at another to recombine both energy and matter, there would be no ordering instruments by which the countless individualities and qualities could be created that make up life as we know it. Thus the cyclical movement of temperature can be viewed as individuality-evoking motion which creates episodal conditions conducive to the evolution of new life forms or the renewal of existing ones.

The defining factors of temperature are the two antitheses of heat and cold, their extreme limits being the transcendental aspects of infinite heat and infinite cold. As we have seen, the achievement of either limit is impossible in the physical world, since the attainment of one would totally negate the existence of the other, while at the same time negating itself. It would then have no counterpart, no polarity, no duality, and the wholeness comprising the interaction of heat and cold at a physical level would cease to exist. Through the neglect of dialectic

thinking in science, through which both sides of the coin, as it were, are taken into account, it would then have become a 'Law' in the same way that science speaks of the 'Law of Gravity' while discounting the counter-aspect of Levity (see fig. 4.6, chapter 3).

While there may indeed be very high temperatures elsewhere in the Universe, here on Earth the temperatures conducive to growth and development are relatively low and lie within a fairly narrow band-width. In the main, natural growth takes place in moderate temperature conditions, large or abrupt variations being harmful to most organisms. Owing to our blinkered education and the technology arising from it, we are accustomed to think of, and accept as natural, temperatures of an extremely high order. We generate our power using combustion and hot fission. Our form of chemistry is coercion-chemistry, in which we create compounds and power our machines using heat, often under extremely high pressures.

Nature, on the other hand, has little constructive use for high pressures and temperatures, except as a means of relieving stresses, e.g. volcanoes and earthquakes, and instead employs cold fusion in her cooperation-chemistry. This is the cool chemistry of mutual suction or attraction between opposite polarities and charges, in which under a partial vacuum - the spacial and energetic vacuity between attracting bodies - various elements come together to create life.

Were it not for such a vacuum, we would not be able to breathe. In 1908 the German surgeon, Prof. Ernst Ferdinand Sauerbruch, discovered this region of low pressure between the pleura and the surface of the lungs and

explained it to his superior, Professor Mikolitsch, as follows:

In the enclosed and healthy lung a low-pressure zone exists, which maintains the pulmonary cavity and enables the lungs to expand with inhalation and contract with exhalation. Were there no vacuum between the surface of the lungs and the pleura, no intake of breath, no resistanceless expansion of the lungs would be possible. Without this partial vacuum, which causes the lining of the lungs to cling to the interior of the rib-cage, the lungs would collapse and death could follow. Should this biological vacuum be filled with normal, atmospheric pressure through any form of perforation, then everything would suffocate.<sup>1</sup>

When Sauerbruch had finished speaking, Mikolitsch told him he was out of his mind and dismissed him without notice. So much for Mikolitsch's open, objective, scientific opinion, a response many other discoverers have suffered at the hands of orthodoxy! The currently accepted and one-sided view of this heat-cold duality, however, is that heat rises and expands, and cold falls and contracts. This is certainly valid for all technical systems and where this applies we shall call them technical heat and technical cold, for want of a better definition. However, this view is only part of the truth for Nature also uses the opposite form, namely rising and expanding cold and falling and concentrating heat. Relative to the vast expanse of the Earth, we humans are little more than viruses, if that. Our general perspective therefore borders on the analytical, since from our low vantage point we cannot observe the whole, but only the smaller parts in our immediate vicinity. By raising our station, as it were, we can see that this other, opposite temperature relationship also exists. Viewed from space, a high-energy state of risen and expanded cold, we can see that a condition of falling and concentrating heat gradually evolves as we approach the Earth's surface, where it supposedly reaches its maximum in the Earth's interior, depending on whether the Earth is viewed as a solid or a hollow body. So far neither of the latter propositions has been proven incontrovertibly.

The difference between these two forms of temperature most commonly experienced,

relates to the temperature inversions that occur between night and day, between winter and summer, or a combination of both diurnal and seasonal temperature fluctuations. During the daytime increasing warmth is experienced as we descend to the bottom of a valley (falling and concentrating heat), whereas it gradually becomes cooler (rising and expanding cold) as we ascend. At night the process reverses (it is more apparent in winter). As we descend the air becomes chillier and denser (falling and concentrating cold), whereas when we ascend the air warms (rising and expanding heat).

It is therefore evident that two different forms of natural temperature/density relation exist, one of which has as yet neither been recognised nor investigated by science, although according to Viktor Schauberger it is the predominant form and the one that makes life possible. Our present technology is therefore completely unbalanced as a result.

These two different forms of temperature, or temperament as Viktor says in reflection of their ethereal origins, have opposite functions and are both active in Nature simultaneously. For evolution and development to proceed unimpeded, however, the higher, uplifting form must predominate. This we will call Type A, representing the collective attributes of rising and expanding cold and falling and concentrating heat, which acting together have an integrating, life-affirming function, leading to cold, formative, metabolic processes. It arises through the 'original' motion of the Earth and can be induced mechanically through the artificial, but naturalesque creation of the cycloid-spiral-space-curve motion (radial-axial) discussed in previous chapters. By this means bio-magnetism can also be generated, a form of energy of which science is presently ignorant.

Conversely, Type B temperatures where heat rises and expands and cold falls and concentrates, have a disintegrative, life-negating function and give rise to warm, decomposive, metabolic activity. Being associated with the analysing energies of electricism, when generated naturally, Nature makes use of Type B for the proper organic decomposition of previously living matter, i.e. for decay without putrefaction.

Through his understanding of the interaction

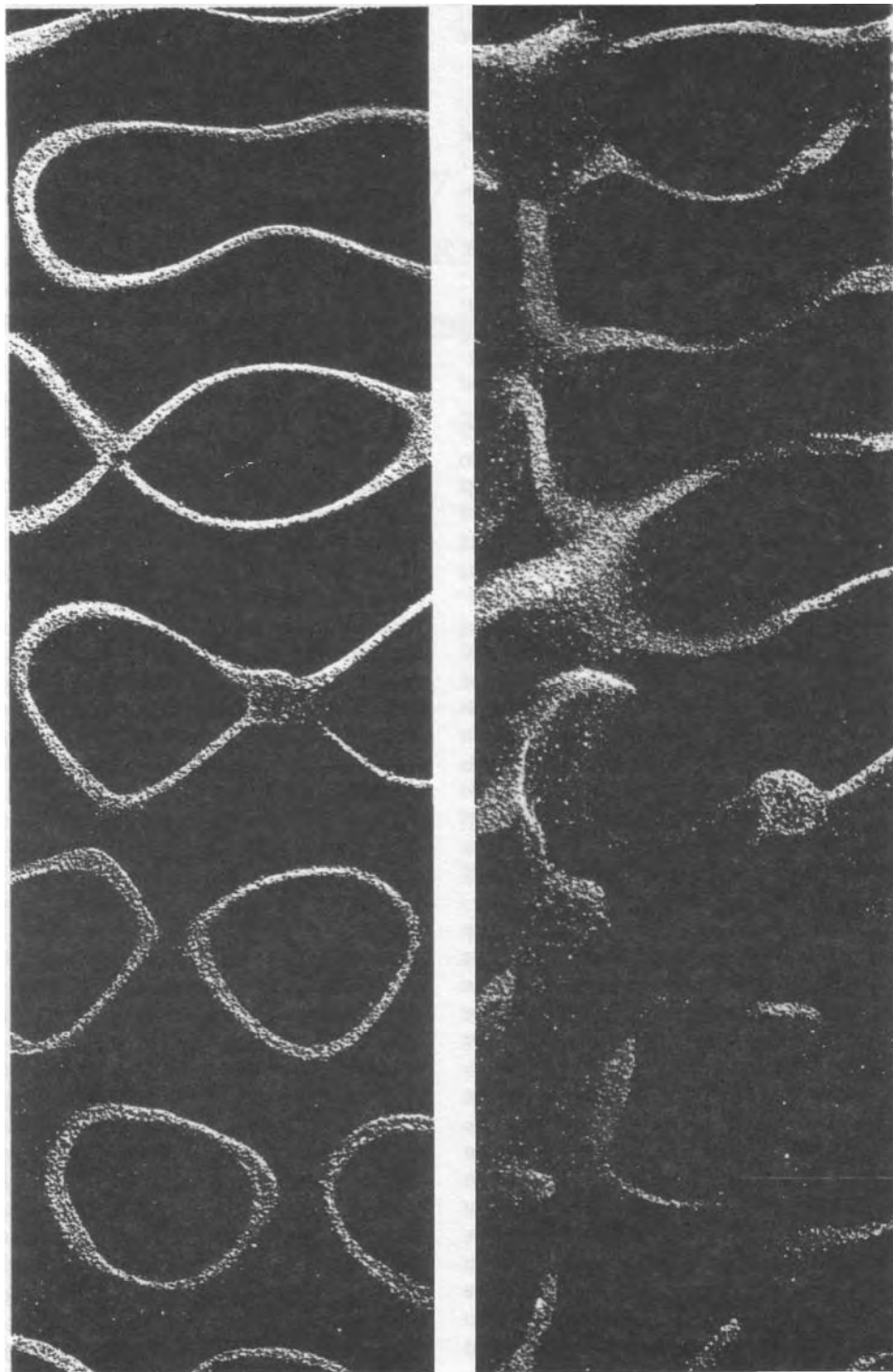


Fig. 7.1 Sonorous figure.

Plate 24.5 x 32.5 cm, thickness 0.5mm, frequency 1580 cps before the effect of heat (detail).

between these two types of temperature, in the later wars of the 1930s and early 1940s Viktor Schaubberger developed the 'Klimator', a space-heater/cooler that functioned according to natural law and was the size of a hat. With the use of this machine, instead of the usual conditions of cold feet and hot head experienced in winter and symptomatic of technically controlled environments, warmer air was generated at lower levels and cooler air higher up. It was also able to create the reverse conditions in summer. In the later chapter 21 on implosion this will be addressed more fully. Type B temperature can be generated by excessive heat - man-made creation of deserts and overclearing of forests. When exploited mechanically in machines or devices not constructed according to Nature's system of dynamics, it gradually disturbs the delicate balance of health in all organic bodies, making them susceptible to cancer and other diseases. This is mainly due to disturbances in the metabolism and therefore in the healthy formation of the life-fluids of water, blood or sap. Unfortunately for us and the rest of the environment, today it is Type B that is exclusively in widespread use.

## 7.2 Temperature - Health & Disease

With present methods of energy generation and creation of motion, large amounts of unnatural, technical heat, noise, noxious fumes and vapour are dissipated into the atmosphere, while soil and water are subjected to massive losses of poisonous materials. All of this is orchestrated according to a mechanistic, centrifugal and therefore divisive ideology which, driven by purely materialistic motives, arrogantly upsets the delicate thermal balance and preconditions required for the health and vitality of every living thing. These misguided practices all have a tendency to raise the general level of temperature above the naturally normal, thus bringing about subtle and sometimes lethal changes in cellular function. In other words the anomaly state of health, the state of 'indifference' as Viktor called it, peculiar to all organisms, macro and micro alike, is disturbed. Cumulatively this has very serious consequences for all those organisms constantly ex-

posed to it. In the process, all the natural conditions for creating and maintaining health are disrupted and the afflicted organism eventually falls victim to disease. In addition to the reduction in available oxygen due to overconsumption by vehicles (see chapter 2), which in humans produces a mild anoxia (oxygen starvation) coupled with a marginal rise in overall body temperature, the permanent establishment of slightly higher and therefore abnormal, unnatural ambient temperatures creates conditions suitable for the propagation of pathogenic bacteria.

A graphic example of the damaging effect of excess heat on structure is shown in fig. 7.1, where a flame was applied to a metal plate upon which an orderly pattern of sand had been formed through vibration<sup>2</sup>. To further illustrate the effect of a rise in temperature here are some pertinent quotations from Viktor Schaubberger<sup>3</sup>.

TO BE OR NOT TO BE: In Nature all life is a question of the minutest, but extremely precisely graduated differences in the particular thermal motion within every single body, which continually changes in rhythm with the processes of pulsation.

This unique law, which manifests itself throughout Nature's vastness and unity and expresses itself in every creature and organism, is the Law of Ceaseless Cycles that in every organism is linked to a certain timespan and a particular tempo.

The slightest disturbance of this harmony can lead to the most disastrous consequences for the major life forms.

In order to preserve this state of equilibrium, it is vital that the characteristic inner temperature of each of the millions of micro-organisms contained in the macroorganisms be maintained.

The fact that temperature plays a role in the development of cancer, however, has now at least been recognised in the sphere of mammography. According to a recent report<sup>4</sup> concerning the detection of breast cancer in women, the milk-ducts in healthy women are regular, whereas in cancer-prone breasts (about 1 in 10 women) the milk-ducts are lumpy and irregular. Strange to relate, the degree of cancer risk is determined by temperature! Using a Chronobra scanning device, the daily changes in breast temperature are measured at 1 minute



intervals. It was determined that there was a different rhythm for high-risk breasts and that their overall temperature was higher than healthy ones. Now what did Viktor Schauburger just say?

While on the subject, on average there are 85,000 dust particles in a litre of city air. Not only that, but in France, for example, investigations determined that the street-air (warmer than normal air) in Paris contained 36,000 pathogenic bacteria per cubic metre, whereas in the forest and over the fields this reduced very sharply to only 490 airborne germs per cubic metre, 0.0136% of the above figure. Other data also infer a correlation between green space and disease, as exemplified in the comparative levels of tuberculosis in relation to the population of three major European cities set out below<sup>5</sup>.

London	14.0%	green space	1.9%	tuberculosis
Berlin	10.0%	green space	2.2%	tuberculosis
Paris	4.5%	green space	4.1%	tuberculosis

Under the direction of Dr. John Whitelegg at Lancaster University, England, a recent two-year scientific study<sup>6</sup> of 1,000 households fronting on major traffic arteries and the health of their occupants has established a direct connection between respiratory diseases and traffic fumes (corollary of traffic heat). It was found that these people had a higher incidence of disease, the most common complaints being headaches, sore throats, breathlessness, itching eyes and a general lack of energy. What is surprising here is that it has taken so long to confirm scientifically what would appear to be quite obvious.

In their aggregation all the various factors mentioned above change, accelerate, retard or otherwise inhibit the normal healthy metabolism of any organism constantly exposed to

them. This changes the natural movement of energy associated with the metabolism in question which inevitably alters the state of 'indifference' (temperaturelessness) peculiar to it.

Another interesting facet, which relates to a conversation I once had with an experienced glider pilot, further highlights the differences in the forms of temperature produced by forest and city respectively and is indicative of the inferior quality and dynamics of the rising technical heat from factory chimneys, car exhausts, concrete surfaces, metal roofs, etc. As the gaining of altitude is the most crucial factor in gliding, I asked where the best thermals (rising air currents) were to be found. Expecting him to say that these occurred over obvious heat sources, such as towns, I was surprised to learn that it was large areas of natural forest that produced them.

With the continued use of present methods, it is therefore no wonder that the incidence of cancer and other diseases is rising so quickly. But worse than this, they are infecting younger and younger age groups. Acute suffering and previously unheard of ailments are increasing alarmingly and all manner of cures are attempted - surgery, radiation, chemotherapy - and yet no-one perceives that it is inherent in the heat-generating and health-debilitating systems of technology, forestry, land and water resources management that we have contrived and with which we have managed to debase all life.

Thorough knowledge of these two forms of temperature and their application will in time put an end to this dreadful scourge. There is therefore no time to be lost in implementing a programme of in-depth investigation of the theories put forward by Viktor Schauburger leading to their practical application, for therein may lie the main chance for our ultimate salvation.

## Notes

1. "The Biological Vacuum - The Optimal Driving Force For Machines", by Viktor Schauburger: Implosion No.53, p.28.
2. From Kymatik/Cymatics by Hans Jenny, photos by Christiaan Stuten: Basilius, Basel, Switzerland (now defunct), ISBN 3-85560-009-0.
3. "The Forest and its Significance" ("Der Wald und seine Bedeutung"), by Viktor Schauburger: Tau magazine, Vol.146, p.2.
4. "Beyond 2000", Channel 7 Television, Australia 25th June 1991.
5. Our Common Future: Oxford Univ. Press. Oxford/New York.
6. BBC 9.00pm news broadcast, Monday 17th December 1993; and The Times newspaper, p.9, 14th December 1993.

## 8 THE NATURE OF

How blossomingly I rejoice! All hail to the new!  
All is born of water and upheld by water too!  
Transpierced thus am I by beauty and by truth!  
Oh, great ocean, grant us thine eternal ruth!

For wouldst thou not send clouds, nor bounteous  
streams endow,  
Nor perfect the currents, nor rivers here and there  
bestow,

Then where would mountains be and what of  
plains and world?

For thou on alone it is that keeps this freshest life  
unfurled.

Johann Wolfgang von Goethe

### 8.1 Water - a Living Substance

**W**ATER! Where do we begin our quest in search of the true nature of this remarkable substance, this wondrous, many-facetted jewel, which is both Life and liquid? So primordial, primeval and fundamental is the function of water that it begs the question as to which came first, life or water. Thales of Miletus (640-546BC) described water as the only true element from which all other bodies are created, believing it to be the original substance of the cosmos. It was the only real substance, because it was imbued with the quality of Being.

This view was also firmly held by Viktor Schauberger, who saw water as the 'original' substance formed by the subtle energies called into being through the 'original' motion of the Earth, itself the manifestation of even more sublime forces. Being the off-

## WATER

spring or the 'First Born' of these energies, as he put it, he maintained and frequently asserted that "Water is a living substance!" a notion to which Goethe also subscribed in the above poem.<sup>1</sup>

As a living entity, Viktor saw water as the accumulator and transformer of the energies originating from the Earth and the Cosmos, and as such was and is the foundation of all life-processes and the major contributor to the conditions which make life possible. Not only that, but once mature, water is a being invested with the power of extraordinary giving and gives of itself to all things requiring life in the ECI's Great Plan. It is the ECI's faithful life-messenger and, in its eternal cycles, coils and twists in its natural movement about the path of evolution, like the serpents on Mercury's staff.

The Upholder of the Cycles which supports the whole of Life, is WATER. In every drop of water dwells a Deity, whom we all serve; there also dwells Life, the Soul of the 'first' substance - Water - whose boundaries and banks are the capillaries that guide it and in which it circulates.<sup>2</sup>

Viktor Schauberger

Water is therefore a being that has life and death. With incorrect, ignorant handling, however, it becomes diseased, imparting this condition to all other organisms, vegetable, animal and human alike, causing their eventual physical decay and death, and in the case of human beings, their moral, mental and spiritual deterioration as well. With this awareness we can see just how vital it is that water should be handled and stored in such a

way as to avoid such disastrous consequences. When we fail to perceive water as a living entity which nurtures all life, we arrest water's creative cycles, we stop life and water is transformed into a dangerous enemy.

Viktor Schauburger's understanding of water and what he achieved as a result is well exemplified in this quotation from his book, *Our Senseless Toil*, written in 1933:

It is possible to regulate watercourses over any given distance without embankment works; to transport timber and other materials, even when heavier than water, for example ore, stones, etc., down the centre of such water-courses; to raise the height of the watertable in the surrounding countryside and to endow the water with all those elements necessary for the prevailing vegetation.

Furthermore it is possible in this way to render timber and other such materials non-inflammable and rot resistant; to produce drinking and spa-water for man, beast and soil of any desired composition and performance artificially, but in the way that it occurs in Nature; to raise water in a vertical pipe without pumping devices; to produce any amount of electricity and radiant energy almost without cost; to raise soil quality and to heal cancer, tuberculosis and nervous disorders.

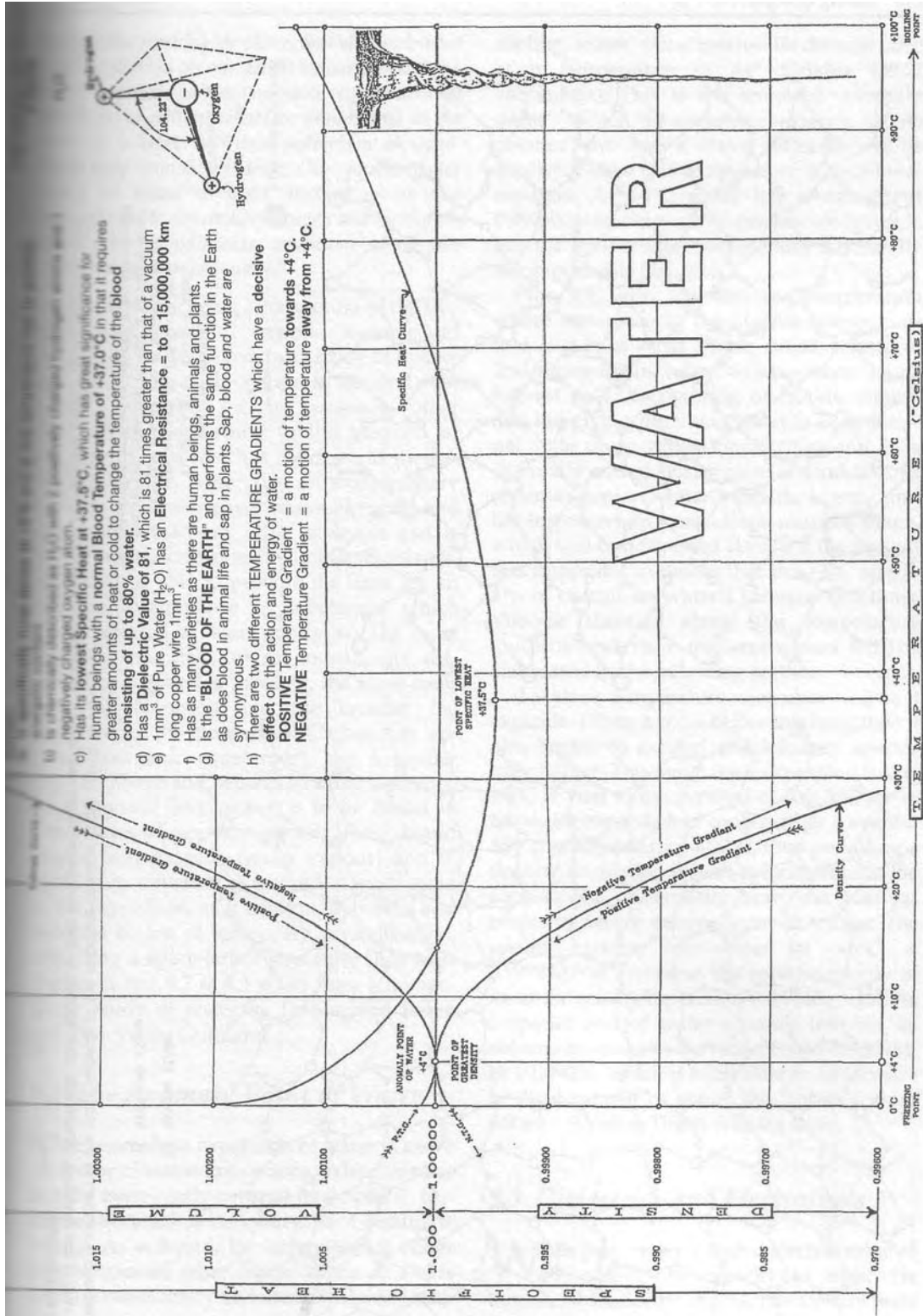
... the practical implementation of this ... would without doubt signify a complete reorientation in all areas of science and technology. By application of these new found laws, I have already constructed fairly large installations in the spheres of log-rafting and river regulation, which as is known, have functioned faultlessly for a decade, and which today still present insoluble enigmas to the various scientific disciplines concerned.<sup>3</sup>

But before going further, let us acquaint ourselves with some of the more commonly known facts about water. First of all, whence did water come? Obviously it cannot have come from the upper atmosphere, since as we saw in chapter 6 the water molecule is actually dissociated at high altitudes. Where else do we look then? If not above then perhaps below, because the atmosphere does not seem conducive to its formation. If below then where? Has it been contained in a crystalline state in ore-bearing rocks since the Earth began? There is some evidence to suggest that it has.

In *The Divining Hand*<sup>4</sup> Christopher Bird describes the pioneering theories and discoveries of Stephan Riess in the United States, which like Viktor Schauburger's, completely contradicted established hydraulic theory. According to Stephan Riess under certain conditions the oxygen and hydrogen gases present in certain types of rock can be released due to the effects of geothermal heat and a process akin to triboluminescence, a phenomenon relating to the light given off by crystalline rocks under friction or violent pressure. This glow is attributed to the energy given off by the electrons contained the rocks as they return from a pressure-induced, excited state to their rest orbits. As a discharge it imparts free energy to the surrounding material, which could be sufficient to cause the hydrogen and oxygen released by the pressure to form new water under a process of cold oxidation.

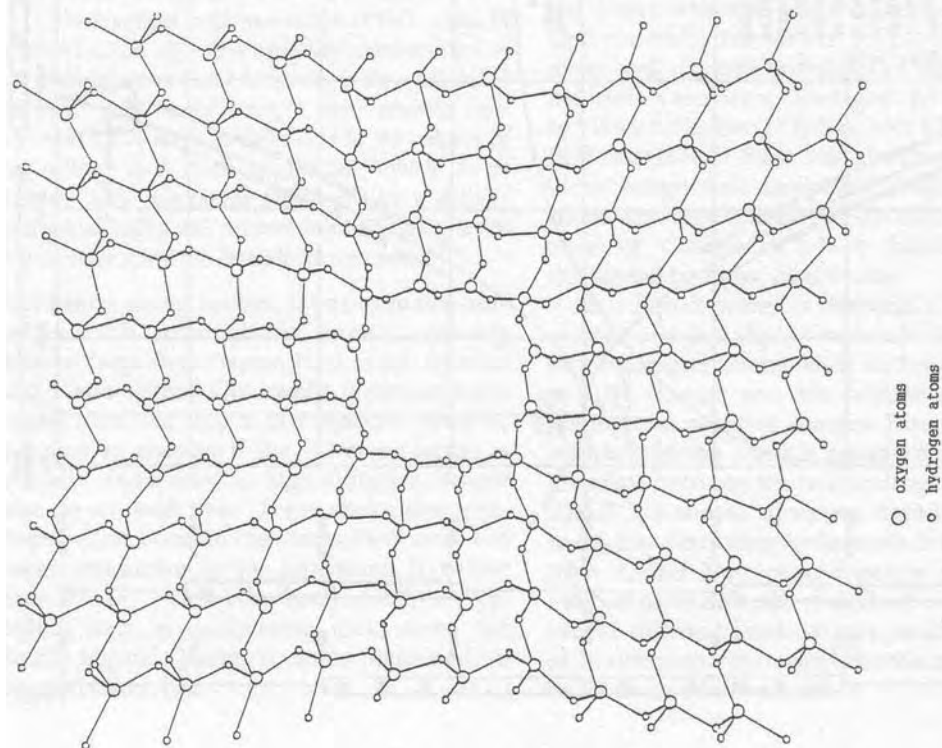
Riess called this virgin water, and as a result of his knowledge he was able to tap straight into formations of hard rock of the right composition and obtain very large quantities of water, in some cases as much as 3,000 gallons per minute. All this right out in the middle of the desert, where no water could be expected. Unfortunately, his efforts to provide needy areas with copious quantities of superb quality, fresh water were sabotaged. As happened to Viktor Schauburger before him, Christopher Bird relates how Riess was slandered and his ideas brought into disrepute through the scurrilous activities of certain high officials in the state of California, whose interests were threatened by Riess' discoveries.

As a liquid, water is chemically described as  $H_2O$  and is a dipole molecule comprising two hydrogen atoms, each endowed with a positive charge, and one oxygen atom containing two negative charges. Due to the distribution of the charges around the nucleus, the angle between the two hydrogen atoms is  $104.35^\circ$ , as shown in upper right-hand inset in fig. 8.1. According to Kenneth S. Davis and John Arthur Day, pure water is actually a mixture of 18 different molecular compounds and 15 different kinds of ions, making a total of 33 different substances<sup>5</sup>. In this regard *The Secret Doctrine* comments:



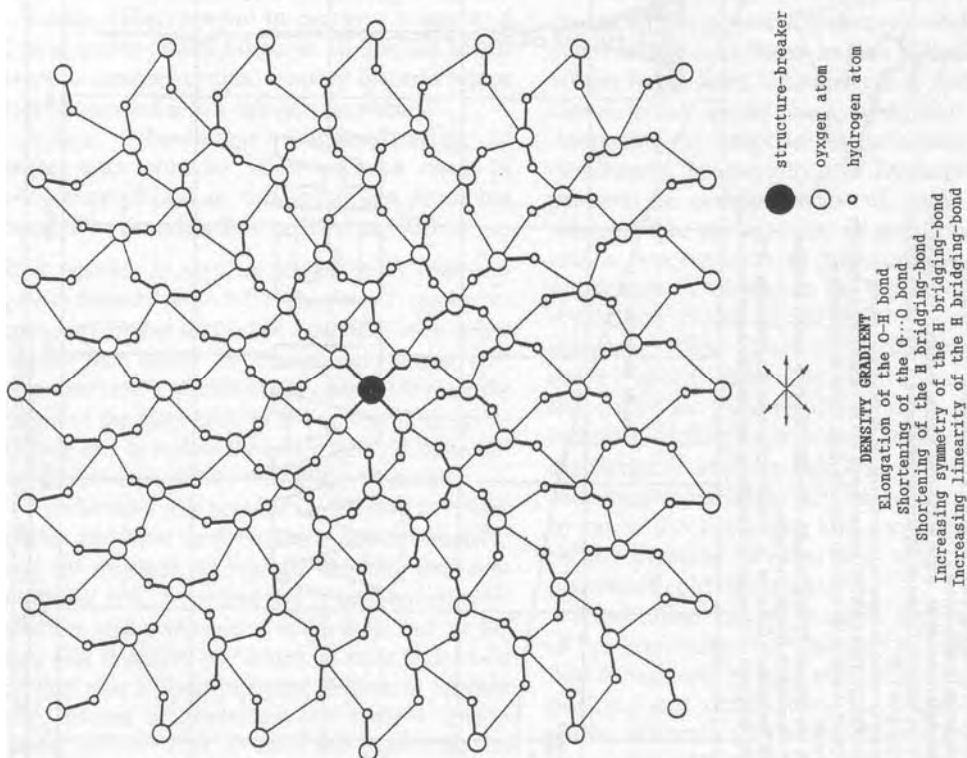
- b) Is specifically designed to be used with a positively charged high-voltage source with a negatively charged oxygen atom.
- c) Has its **lowest Specific Heat** at +37.5°C, which has great significance for human beings with a **normal Blood Temperature** of +37.0°C in that it requires greater amounts of heat or cold to change the temperature of the **blood consisting of up to 80% water**.
- d) Has a **Dielectric Value** of 81, which is 81 times greater than that of a vacuum
- e) 1mm<sup>3</sup> of Pure Water (H<sub>2</sub>O) has an **Electrical Resistance** = to a 15,000,000 km long copper wire 1mm<sup>3</sup>.
- f) Has as many varieties as there are human beings, animals and plants.
- g) Is the "**BLOOD OF THE EARTH**" and performs the same function in the Earth as does blood in animal life and sap in plants. Sap, blood and water are synonymous.
- h) There are two different **TEMPERATURE GRADIENTS** which have a **decisive effect** on the action and energy of water.  
**POSITIVE Temperature Gradient** = a motion of temperature **towards** +4°C.  
**NEGATIVE Temperature Gradient** = a motion of temperature **away from** +4°C.

Fig. 8.1 Water – some important physical facts



Idealised illustration of the static aspects of the structure of water in the vicinity of a void in the structure, whose size corresponds to that discovered experimentally in acid hydrates.

Fig. 8.2



Idealised illustration of the static aspect of the structural order of water in the vicinity of a so-called structure-breaker.

Fig. 8.3

Even on the next higher plane, that single element which is defined on our Earth by current science, as the ultimate undecomposable constituent of some kind of matter, would be pronounced in the world of a higher spiritual perception as something very complex indeed. Our purest water would be found to yield, instead of its two declared simple elements of oxygen and hydrogen, many other constituents, undreamt of by our terrestrial modern chemistry.<sup>6</sup>

In its pure form, being a compound of the two gases hydrogen and oxygen, water could technically be described as an oxide of hydrogen. Water is no self-contained, isolated substance, however, for it possesses other characteristics according to the medium or the organism in which it resides and moves. As a molecule, water has an extraordinary capacity to combine with more elements and compounds than any other molecule and is sometimes described as the universal solvent. As such it is able to provide the basis for an intimate intermixture of substances which Viktor referred to as an 'emulsion'. The more complex the make-up of constituents dissolved or suspended in water, the more complex the emulsion and the broader the spectrum of its properties. Carbon, its so-called inorganic counterpart, has a similar capacity above and beyond all other elements. At a physical level water is to be found in three states of aggregation, solid (ice), liquid (water) and gaseous (water vapour) and in terms of its structure as a liquid, it tends more to the crystalline, as it continually forms and re-forms nodes of temporary crystallisation, exhibiting a space-lattice structure, such as is shown in figs. 8.2 & 8.3 taken from a homeopathic study of water by Dr. Gerhard Resch and Prof. Viktor Gutmann<sup>7</sup>.

## 8.2 The Anomaly Point of Water

The anomalous expansion of water is also a factor of major importance. While this has already been partly covered in chapter 7, further elaboration is necessary. To recapitulate briefly: As a liquid, the behaviour of water differs from all other fluids. While all fluids become consistently and steadily denser with

cooling, water, alone reaches its densest state at a temperature of +4° Celsius (39.2° Fahrenheit). This is the so-called 'anomaly point', which is decisive in terms of its potency and has a major influence on its quality. Below this temperature it once more expands. At +4°C water has a density of 0.99996 grams per cubic centimetre (g/cm<sup>3</sup>), has the least spacial volume and is virtually incompressible (fig. 8.1).

Plus 4°C also signifies the temperature where water has its the highest energy content and is in what Viktor called a state of 'indifference'. In other words, when in its highest natural condition of health, vitality and life-giving potential, water is at an internal state of energetic equilibrium and in a thermally and spatially neutral condition. In order to protect water's health, energy and life-force, certain precautions must be taken, which will be addressed later. For the present it is important to realise that the +4°C anomaly is crucial to water's diverse functions. Viktor's theories about the temperature gradient and their implementation will be elaborated in the following section.

If water's temperature rises above +4°C, it expands. When it cools below this level then it also begins to expand and becomes specifically lighter. This anomalous expansion below +4°C is vital to the survival of fish life, for as the water expands and cools further it eventually crystallises as ice at 0°C, thus providing a floating, insulating sheath, which protects the aquatic life underneath from the harmful effects of severe external cold in winter. The specific gravity of water at +0°C = 0.99984g/cm<sup>3</sup>, whereas the specific gravity of ice at the same temperature = 0.9168g/cm<sup>3</sup>. As 1 spacial unit of water expands into ice, its volume increases in the ratio of 0.9168:0.99984, or 1:1.09058, which is equivalent to an increase in displacement of about 1/11th of its former volume as water. This is why ice floats.

## 8.3 Dielectrics and Electrolysis

While pure water's high dielectric value of 81, namely its capacity to resist the transfer of an electric charge, has already been

mentioned in chapter 7, there is another aspect to this which, in the light of Viktor Schauberger's concept of hydrogen as the carrier of oxygen and carbone (fig. 5.1, see p. 83), needs to be looked at in relation to one of the major fallacies of science. Still taught as Gospel truth in all schools and universities, electrolysis is supposedly the process by which water is dissociated into its constituent atoms of hydrogen and oxygen. However from the above we know that pure water will not transmit an electric current and this factor is also used to measure the pollution of water using what are called electro-conductivity units or ecus. The greater the content of dissolved and suspended matter in water, the greater its capacity to carry an electric current and the higher the values in ecus registered.

In order to set the process of electrolysis in motion, however, it is necessary to add some acid, such as sulphuric acid -  $H_2SO_4$  - to the distilled water, the acid here always being referred to as the 'catalyst'. A catalyst is an element or agent which inaugurates a given reaction, but is not itself affected or changed in any way by it. This can be learnt from any physics textbook. From time to time, however, if electrolysis is to continue, more acid must be added otherwise the process will cease and all that will be left once again is water. But this acid was supposed to be the catalyst and therefore impervious to the effects of the electric current! What happened to it?

As the process of electrolysis proceeds, oxygen gas and hydrogen gas are indeed released, the negatively charged hydrogen ions migrating towards the positive electrode and the positively charged oxygen ions towards the negative electrode. Are these released gases actually derived from the water, however, or do they originate from the added acid? Sulphuric acid is formed of 2 hydrogen atoms, 1 sulphur atom and 4 oxygen atoms. If these gases are in fact produced through the dissociation of the acid rather than the water, then the whole process of electrolysis as presently taught is a widespread fraud as Viktor claimed in his 1932 article "Electrolysis"<sup>8</sup>.

The Secret Doctrine also advances thought-provoking comment on what might be the state of being of the various elements of acid

and water when combined as a mixture in electrolysis.

The question whether Hydrogen and Oxygen cease to exist when they combine to form water, is still a moot one, some arguing that since they are found again when water is decomposed, they must be there all the while; others contending that as they actually turn into something totally different they must cease to exist as themselves for the time being; but neither side is able to form the faintest conception of the real condition of a thing, which has become something else and yet has not ceased to be itself.<sup>9</sup>

It appears then that water retains its identity when in the electrolyte (the mixture of water and acid), and once the electrolytic process has been completed, then all that remains is again water.

A further life-giving property of water is its high specific heat and thermal conductivity (which were studied in chapter 6), namely the ability and the rate at which it absorbs and releases heat. This means that a large input or extraction of heat energy is required to bring about a change in density and temperature. The lowest point of the curve of the specific heat values for water, however, is  $+37.5^{\circ}C$  or  $99.5^{\circ}F$  (fig. 8.1). It is remarkable that the lowed specific heat of this 'inorganic' substance - water - lies but  $0.5^{\circ}C$  ( $0.9^{\circ}F$ ) above the normal  $+37^{\circ}C$  ( $98.6^{\circ}F$ ) human blood temperature - at which the greatest amount of heat or cold is required to change the water's temperature. This property of water to resist rapid thermal change enables us, with blood composed of up to 90% water, together with many other animals and creatures, to survive a relatively large range and fluctuation of temperatures and still maintain our own internal bodily temperature. Pure accident so we are told, or is it by clever, symbiotic design?! If the blood in our bodies had a lower specific heat, it would mean that it would heat up much more rapidly to the point where we would either start to decompose or freeze if exposure was to extreme cold.

However, in our mechanistic world we are used to thinking about temperature in gross terms (automobile engines operate at temperatures of  $1,000^{\circ}C$  ( $1,832^{\circ}F$ ) or so and many

industrial processes employ extremely high temperatures. Despite the fact that we begin to feel unwell if our temperature rises by as little as  $0.5^{\circ}\text{C}$  ( $0.9^{\circ}\text{F}$ ), we fail to see that non-mechanical, organic life and health are based on very subtle differences in temperature. When our body temperature is  $+37^{\circ}\text{C}$  ( $98.6^{\circ}\text{F}$ ) we do not have a 'temperature' as such. We are healthy and, recalling Viktor's view, are in an 'indifferent' or 'temperature-less' state. Just as good water is the preserver of our proper bodily temperature, our anomaly point of greatest health and energy, so too does it preserve this planet as a habitat for our continuing existence. Water in all its forms and qualities is thus the mediator of all life and deserving of the highest focus of our esteem.

Water and its vital interaction with the forest was Viktor's principal preoccupation, viewing water as the 'Blood of Mother-Earth', which in contrast to Carl Riess' theories mentioned earlier, was born in the womb of the high forest. This will be examined more fully later. Our mechanistic, materialistic and extremely superficial way of looking at things, however, prevents us from considering water to be anything other than inorganic, i.e. supposedly without life, but which, while apparently having no life itself, can nevertheless miraculously create life in all its forms.

Life is movement and is epitomised by water in a constant state of motion and transformation, both externally and internally. Flowing as water, sap and blood, this life molecule is the creator of the myriad life-forms on this planet. How then could it ever be construed as life-less as in the chemist's clinical view of water, defined as the inorganic substance  $\text{H}_2\text{O}$ ?

This cryptic symbol is a gross misrepresentation. Were water merely the sterile, distilled  $\text{H}_2\text{O}$  as presently described by science, it would be poisonous to all living things.  $\text{H}_2\text{O}$  or 'juvenile water' is sterile, distilled water and devoid of any so-called 'impurities'. It has no developed character and qualities. As a young, immature, growing entity, it grasps like a baby at everything within reach. It absorbs the characteristics and properties of whatever it comes into contact with or has attracted to itself in order to grow to maturity. This 'everything' - the 'impurities' - takes the form of trace elements, minerals, salts and even smells! Were we to drink pure  $\text{H}_2\text{O}$  constantly, it would quickly leach out all our store of minerals and trace elements, debilitating and ultimately killing us. Like a growing child, juvenile water takes and does not give. Only when mature, i.e. when suitably enriched with raw materials, is it in a position to give, to dispense itself freely and

Fresh Water has many principal qualities, which can be differentiated according to drinking quality.		
Water Type	Description	Drinking Quality
Distilled water	Purest water, contains no other elements.	bad
Meteoric (rainwater)	Contains some atmospheric gases.	poor
Juvenile (immature water)	Contains few minerals or trace elements.	poor
Surface water (dams, reservoirs, rivers)	Contains some minerals and salts accumulated by contact with the soil.	adequate
Groundwater	Contains a greater quantity of minerals.	good
Seepage-spring water	As for groundwater.	good
True spring water	High in dissolved carbons and minerals	best
Artesian water	Deep-lying water which may be fresh or saline and can contain a variety of dissolved elements and gases	variable

Fig. 8.4



willingly, thus enabling the rest of life to develop.

## 8.4 Qualities of Water

**B**ut what is this marvellous, colourless, tasteless and odourless substance, which quenches our thirst like no other fluid? Did we but truly understand the essential nature of water - a living liquid - we would not treat it so churlishly, but would care for it as if our lives depended on it, which undoubtedly they do.

Apart from the actual treatment of water investigated in chapter 15, certain types of water are more suitable for drinking than others, the following being a general classification to be read in conjunction with fig. 8.4.

### DISTILLED WATER

This is what is considered physically and chemically to be the purest form of water. Having no characteristics other than total purity, it has a pre-programmed will to unite with or acquire, to extract or attract to itself all the substances it needs to become mature itself, and therefore absorbs and grasps at everything within reach. Such water is really quite dangerous if drunk continuously long-term. When distilled water (aqua destillata) is drunk it acts as a purgative, stripping the body of trace minerals and elements. On occasion it has been used for its short-term therapeutic effect, such as in the so-called 'Kneipp cure', where it acts to purge the body of excessive deposits of various materials.

### METEORIC WATER - RAINWATER

While the purest naturally available water, noxious atmospheric pollutants aside, meteoric water or rainwater is also unsuitable for drinking in the long term. It is marginally better than distilled water and slightly richer in minerals, due to the absorption of atmospheric gases and dust particles. As a living organism it is still in adolescence, still immature, and needs to undergo certain ripening processes in order to be able to be absorbed by the body and to be of benefit to

it. When drunk as melted snow-water, it also gives rise to certain deficiencies and if no other water is available on occasion can result in goitre, the enlargement of the thyroid gland.

### JUVENILE WATER

Juvenile water, again, is immature water, but it is water coming from the ground. It has not matured properly on its passage through the ground. It emerges, perhaps in the form of geysers, etc., from quite a long way down. It has not yet resolved itself into a mature structure and is therefore still of 2-star quality. It contains a few minerals, some trace element and only small quantities of dissolved carbons, but again as drinking water it is not very high grade.

### SURFACE WATER

Surface water - dams, reservoirs, etc. - contains some minerals and salts accumulated by contact with the soil and also from the atmosphere but, generally speaking it is not a very good quality water, partly because of atmospheric exposure to heavy oxygenation and to heat exposure from the Sun. The Sun's heat removes a great deal of the character and energy of water.

### GROUNDWATER

Ground water is already much better, often expressing itself as a seepage-spring, which is water emanating from lower levels and which seeps out at the surface after passage along the top of an impervious stratum. It has a larger quota of dissolved carbons which are the most important ingredient in high quality water, apart from other trace salts.

### TRUE SPRING WATER

True springwater, and we shall explore the differences between a seepage spring and a true spring later on, is very high in dissolved carbons and minerals, and of the highest possible quality. Its high state of health and vitality is affirmed by its shimmering, vibrant bluish colour, which is not evident in inferior waters. Such water is ideal for drinking, if it can be obtained. Unfortunately there are now

very few true, high-quality springs left, due to the destruction of the environment.

Apart from the above waters, there are artesian waters obtained from bores, which are of unpredictable quality. At times they may be saline and at others, brackish, or fresh. One can never be sure that bore-water will necessarily be of drinking quality. Well-water would probably lie between ground-water and seepage-spring water, but most probably can be likened and classified as groundwater. Once again it depends on how deep the well is and what stratum of water is trapped.

But what are we actually given to drink? This subject of vital interest to us all, which so intimately affects our life, health and well-being, will be discussed in a later chapter, because we must now turn our attention to the temperature gradient which, after the anomaly point of  $+4^{\circ}\text{C}$ , is the next most important factor in the understanding of water and its proper, natural handling.

## 8.5 The Temperature Gradient

A part from other factors (some cannot be defined quantitatively), encompassing such aspects as turbidity (opaqueness), impurity, and quality, the most crucial factor affecting the health and energy of water is temperature, the various aspects of which will be addressed in greater detail later, but first of all a general overview is in order. Conceived in the cool, dark cradle of the virgin forest, water ripens and matures as it slowly mounts from the depths. On its upward way it gathers to itself trace elements and minerals. Only when it is ripe, and not before, will it emerge from the bowels of the Earth as a spring. As a true spring, in contrast to a seepage spring, this has a water temperature of about  $+4^{\circ}\text{C}$  ( $39.2^{\circ}\text{F}$ ). Here in the cool, diffused light of the forest it begins its long, life-giving cycle as a sparkling, lively, translucent stream, bubbling, gurgling, whirling and gyrating as it wends its way valleywards. In its natural, self-cooling, spiralling, convoluting motion, water is able to maintain its vital inner energies, health and

purity. In this way it acts as the conveyor of all the necessary minerals, trace elements and other subtle energies to the surrounding environment.

Naturally flowing water seeks to flow in darkness or in the diffused light of the forest, thus avoiding the damaging direct light of the Sun. Under these conditions, even when cascading down in torrents, a stream will only rarely overflow its banks. Due to its correct natural motion, the faster it flows, the greater its carrying capacity and scouring ability and the more it deepens its bed. This is due to the formation of in-winding, longitudinal, clockwise-anti-clockwise alternating spiral vortices down the central axis of the current, which constantly cool and re-cool the water, maintaining it at a healthy temperature and leading to a faster, more laminar, spiral flow.

To protect itself from harmful effects of excess heat, water shields itself from the Sun with over-hanging vegetation, for with increasing heat and light it begins to lose its vitality and health, its capacity to enliven and animate the environment through which it passes. Ultimately becoming a broad river, the water becomes more turbid, the content of suspended small-grain sediment and silt increasing as it warms up, its flow becoming slower and more sluggish.

However, even this turbidity plays an important role, because it protects the deeper water-strata from the heating effect of the Sun. Being in a denser state, the colder bottom-strata retain the power to shift sediment of larger grain-size (pebbles, gravel, etc.) from the centre of the watercourse. In this way the danger of flooding is reduced to a minimum. The spiral, vortical motion mentioned earlier, which eventually led Viktor Schauberg to the formation of his theories concerning 'implosion', creates the conditions where the germination of harmful bacteria is inhibited and the water remains disease-free.

The omission of temperature in the form of the 'temperature gradient' in all hydraulic calculation has resulted in the most devastating floods and the ruination of almost all waterways. While flow velocity, shear force

(sweeping force), sediment load, turbidity, viscosity, to name a few, are taken into account in numerous formulae, the temperature gradient, which significantly affects the function of all these different factors, has so far been totally disregarded in the fields of river engineering, water supply, water resources management and the condition of water generally.

Apart from variations in its content of organic matter, minerals and salts, the so-called 'impurities', water has always been deemed a lifeless inorganic substance. Therefore, except for certain defined water-temperatures required for specific purposes, cooling, heating, etc., the temperature or variations in temperature of any given water or water-body has been considered totally immaterial to the behaviour of the water itself, since the measured range of these variations has generally been rated too small to be capable of producing any noteworthy effect. This attitude has apparently remained unchanged.

In early July 1991 I attended a symposium on river engineering at the University of New England, Armidale, Australia, for the express purpose of discovering the state of the art in hydrology with regard to water temperature. The keynote speaker was Prof. John F. Kennedy (!!), a hydraulicist of world repute, director of the Iowa Institute of Hydraulic Research and Hunter Rouse Professor of Hydraulics at the University of Iowa in the United States. As he spoke I sat ready with pencil and paper to record every mention of the word 'temperature'. By the end of the hour's very interesting address, in which Professor Kennedy expressed his great love of rivers, I had only one tick on my paper! Afterwards, wanting more precise data, I spoke with him for about 15 minutes, describing Viktor Schauberger's theories about water movement and temperature and the fact that in the 1930s they had had the full support of an equally world renowned hydrologist, Prof. Philipp Forchheimer, with whose work Professor Kennedy was acquainted. However, according to Kennedy, the influence of temperature on the dynamics of water flow was still considered negligible

and therefore never taken into account. Having had this information straight from the horse's mouth, as it were, it is therefore to be concluded that temperature, as a factor in river engineering, is still ignored. As we shall see, however, it is precisely the small, sometimes infinitesimal variations in temperature that are crucial to the natural, healthy movement of water and optimal flow-regimes in streams.

Viktor Schauberger defines the temperature gradient, of which there are two forms, as follows:

A positive temperature gradient exists;

- a) when the temperature of the water decreases and its density increases towards the anomaly point of  $+4^{\circ}\text{C}$ , or;
- b) when the density and temperature increase from freezing and below towards  $+4^{\circ}\text{C}$ .
- c) When ground or water temperatures are cooler than air temperatures.

A negative temperature gradient exists;

- d) when the movement of temperature is away from  $+4^{\circ}\text{C}$ , either upwards or downwards, both of which signify a decrease in density and energy.

In fig. 8.1 (p. 109) the direction of movement of these two temperature conditions are shown as two curves delineating the variations of volume and density with temperature. Here it can be seen how, with cooling, the volume decreases and the density increases, and vice versa with heating. A movement of temperature towards the anomaly point of  $+4^{\circ}\text{C}$  always involves a positive temperature gradient, whereas a movement in the opposite direction is indicative of a negative temperature gradient. Remember here that heat, or whatever is suspended in a given medium (air or water), always flows or is transported towards cold.

Both forms of temperature gradient are active simultaneously in Nature but, for there to be evolution instead of devolution, the positive temperature gradient must predominate. On both upward and downward paths life emerges at the intersection of these two 'temperaments' as it were, each of which has

different characteristics, properties, potential and opposite directions of movement or propagation.

Whatever manifests itself as a result of the interaction of these mutually opposing essences depends on the relative proportions between them, which also determines their point of intersection. For example, if the positive temperature gradient is very powerful, then the effect of the reciprocally weaker negative temperature gradient is beneficial and promotes the outbirth into physical form of the highest quality substances. In more mathematical terms, if as seen in fig. 4.6 the total effect of two dialectic opposites equals the unity, i.e.  $1 \times 1 = 1$ , then if one of the aspects is reduced to a half, the value of the other is two. Despite the changed characteristics and properties, the overall value of the unity 1 has not been changed, however, because  $1/2 \times 2$  equals 1.

Conversely, if the roles and ratios are reversed and the negative temperature gradient is very dominant, then what unfolds as material substance is of inferior worth. For evolution and growth to proceed with increasing quality, vitality and health, which form is uppermost and at what level of reciprocity their interaction takes place is of absolutely crucial importance, for this not only affects the movement of water, the movement of sap in plants and the flow of blood in our veins, but also the configuration, structure and quality of the channels, ducts and vessels surrounding and guiding them, as will be seen later.

As it flows, water acts completely differently according to whichever temperature

gradient is in force. In its concentrative, cooling, energising function the  $+4^{\circ}\text{C}$ -approaching, positive temperature gradient has a formative effect. It is a process whereunder living systems can be built up, since in water it draws the ionised substances together into intimate and productive contact, for here the contained oxygen becomes passive and is easily bound by the cool carbonates, thereby contributing beneficially to healthy growth and development. The  $+4^{\circ}\text{C}$ -deviating, negative temperature gradient, on the other hand, has a disintegrative, debilitative function, for with increasing warming the structure of a given body becomes more loosely knit with a commensurate loss in cohering energy. In this case, due to the rising temperatures, the oxygen becomes increasingly aggressive and reverses its role as co-creator and benefactor, turning into a destroyer and fosterer of diseases and pathogens.

In all waters, forests and other living organisms the temperature gradient is active in both positive and negative forms. In the natural processes of synthesis and decomposition each has its special role to play in Nature's great production, but each must enter upon the stage of life at its appointed time. The positive temperature gradient, however, like temperature Type A and biomagnetism (see p. 103), must play the principal role if evolution is to unfold creatively. Unfortunately with our myopic fixation on heat-producing and therefore destabilising, depletive technology, we have turned this sublime order upside down and are now reaping the ever more awesome fruits of our misguided labour.

## Notes

1. "The Ox and the Chamois", by Viktor Schauberg: TAU magazine, No.146, p.30: Werner Zimmermann.
2. Our Senseless Toil, Pt.I, p.11.
3. Our Senseless Toil, Pt.I, p.4.
4. The Diving Hand by Christopher Bird: New Age Press, USA ISBN 0-87613-090-2.
5. Water - The Mirror of Science by K.S. Davis & J.A. Day: Heinemann Educational, London, 1964.
6. The Secret Doctrine by H.P. Blavatsky, (Adyar Ed., 1971), Vol.1, p.125: Theosophical Pub., Adyar, India.
7. Wissenschaftliche Grundlagen der Homöopathie, "Scientific Foundations of Homeopathy": Barthel & Barthel, Postfach 57, D-82069 Schafflarn, Germany, ISBN 3-88950-025-0.
8. Quoted from Viktor Schauberg's article, "Electrolysis", Der Wiener Tag newspaper, No.3443, p.20, 18th December 1932.
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# THE HYDROLOGICAL CYCLE

As a precursor to the evolvement of other life-forms, water's most vital function is its ceaseless, life-giving cycle through, around and over the Earth. This is normally referred to as the 'Hydrological Cycle' or 'Water Cycle' and involves the movement of water from subterranean regions to the atmosphere and back again. In terms of Viktor's concepts, however, we have to differentiate between the full and the half hydrological cycles, the difference between which is presently unrecognised by science. This difference, however, is crucial to the understanding of what is presently happening worldwide climatically.

## 9.1 The Full Hydrological Cycle

Fig. 9.1 shows the full hydrological cycle. Here the series of upward, anti-clockwise spirals at the far left hand side depict the evaporation of water from the sea. This rises, condenses and falls as rain. Some sinks into the earth and some drains away over the ground-surface, depending on whether the ground is forested or not and what type of temperature gradient is active in a given situation. In forested areas where, under natural conditions a positive temperature gradient normally prevails, the retention of runoff is in the order of 85%, about 15% being absorbed by the vegetation and humus and about 70% going towards groundwater, aquifer and underground stream recharge.

In the full hydrological cycle the groundwater table is recharged, the water is drawn up by and through the trees, transpires via

the leaves and rises to form clouds. In this diagram the evaporation from the ocean is differentiated from the transpiration from the vegetation, the former depicted as rising spirals rotating anticlockwise, the latter as clockwise gyrating spirals. This differentiation has been made because, in my view, the energies in the transpired water from the forest are qualitatively different from those in water evaporated from the sea.

When water rises from the trees, it is rising from a living thing, rather than from a body of water, such as the ocean. This is not to suggest that such a body of water is dead, but that it is inhabited by many creatures which consume almost all that it produces, both materially and in the way of energetic emanations, CO<sub>2</sub>, O<sub>2</sub>, etc. Therefore in terms of transpiration from the forest, we may be concerned with an energy form derived from a more dynamic living system which carries within it the imprint of the characteristics, traits, higher vibratory matrices of its mineral and trace-element content and the resonances of its living plant source. These additional qualities and energies are largely of immaterial nature and best explained in terms of homeopathic theory, in which the finer the dilution of a substance, the greater its efficacy as a healing medium. We shall therefore digress for a moment to acquaint ourselves with them.

The publication of an article entitled "Human Basophil Degranulation Triggered by Very Dilute Antiserum Against IgE" on the 30th June 1988<sup>1</sup>, startled the scientific world, because the discovery it described

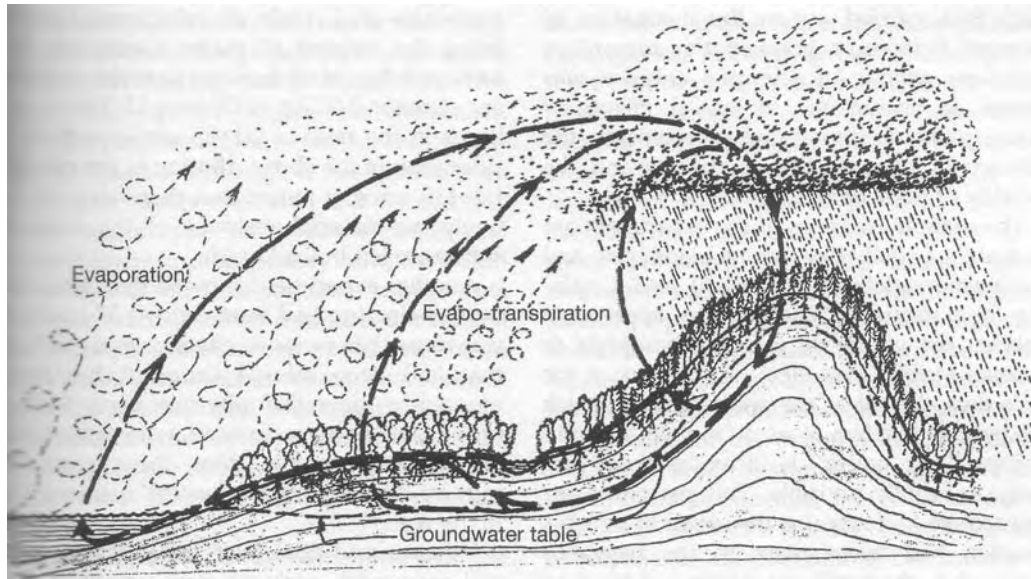


Fig. 9.1 The full hydrological cycle

The "FULL CYCLE" of water, the full hydrological cycle, is characterised by the following phases:

- Evaporation from oceans and evapo-transpiration from vegetation;
- Rising water-vapour;
- Cooling and condensing:
- Formation of clouds;
- Precipitation as rain;
- Infiltrates the ground under positive temperature gradient;
- Recharge of groundwater and aquifers;
- Maintenance and regulation of height of groundwater table;
- Formation of +4°C centre-stratum in groundwater;
- Creation of underground retention basins;
- Passage through the +4°C centre-layer of the groundwater;
- Purification at this temperature;
- Further sinking into the subterranean aquifers due to its own weight;
- Transition to a vaporous state due to the influence of the Earth's hot interior;
- Rising again towards the ground-surface with the simultaneous uptake of nutrients;
- Cooling of the water and deposition of nutrients;
- Draining away over the ground-surface;
- Evaporating and forming clouds;
- Falling again as rain, and so on.

could not be explained by the ordinary laws of physics. The article was the result of meticulous research began in 1983 by Professor Jacques Benveniste of the French National Institute for Health and Medical Research laboratory (INSERM) at the University of Paris-Sud, carried out at the instigation of Bernard Poitevin, a homeopathic researcher, this new avenue of scientific enquiry was aimed at testing the biological effects of homeopathic dilutions, and by extension, the efficacy of homeopathic medicines and the validity of homeopathic concepts.

The main ingredients of the experiment are basophils (a jelly-like white blood cell and anti-immunoglobulin E - or  $\text{algE}$ ), and a staining dye, toluene blue, whose application enables the otherwise invisible basophils to become visible. The effect of exposure of the cells thus stained to the antibody  $\text{IgE}$ , which Michel Schiff refers to as a "biological 'paint stripper'" or 'eraser'<sup>2</sup> is to render them partially or wholly invisible. This permitted the researchers to determine the extent to which a reaction had taken place in the basophils exposed to the antibody solution. According to Professor Benveniste, the reaction occurs even when the antibody dilutions amount to 1 part in  $10^{120}$  parts of distilled water, that is to say, a dilution in the proportion of 1:1 +119 zeros. To give an idea of the vast magnitude of the above figure, it is estimated by astronomers that the number of stars in the Universe amount to about 10 to the power of 20, i.e. 1 + 19 zeros or 1,000,000,000,000,000.

In these experiments one drop of what is described homeopathically as the 'mother-tincture' (in this case  $\text{algE}$ ) is added to 99 drops of distilled water. This mixture is then shaken up and down or 'succussed' for about 30 seconds. 1 drop of this new mixture is then added to a further 99 drops of distilled water. This process was repeated 120 times. However, when the basophils exposed to this extraordinarily dilute antibody were observed, the reaction, i.e. the change in their visibility, could still be detected in a very large number of them.

Statistically, according to classic physics and chemistry, after 23 dilutions in which 100 trillion-billion molecules of distilled water were added to every molecule of the anti-

body  $\text{IgE}$ , there should have been no molecule of the antibody left. This relates to the so-called avogadro constant,  $6.022 \times 10^{23}$ , formulated by the Italian physicist Count Amadeo Avogadro di Quaregna (1776-1856), which determines the number of atoms or molecules in 1 mole of substance, 1 mole being the amount of matter containing the same number of elementary particles as there are atoms in 0.012kg of Carbon-12. This number is in the ratio of 1:1+23 zeros, so in consideration of the above dilution in the ratio of 1:1+119 zeros, it meant that there were effectively no material residues of the original substance left in the liquid.

Another experiment showed that, after the mother-tincture had been diluted 37 times, it was more than twice as effective as a solution that had been diluted thrice. It has been mooted by theoretical physicist Lynn Trainor of the University of Toronto, who carried out parallel experiments, that these reactions may be the result of a 'physical' memory left in the water<sup>3</sup>.

What caused this effect? Why did the cells still react with such an over-astronomically dilute solution? Is it memory as Lynn Trainor suggests? In a certain sense memory could be construed as a phenomenon of resonance, of things once heard as it were, the immaterial energetic imprint of the image and qualities of the original preparation. Be that as it may, in my view it is for this reason that the transpirational material from the forest is endowed with a higher quality energetically than the water coming from the sea.

Just for the record, however, this discovery by Jacques Benveniste, like those of Stephan Riess and Viktor Schauburger before him, was evidently viewed as an unpardonable assault on the doctrines of established academe which tends to stray far from the principles of scientific integrity and impartiality enunciated by Sir William Grove in chapter 1. As a result Benveniste became both target and victim of much opprobrium from orthodox science and medicine. Indeed, in October 1993 it was reported that he was to be evicted as head of the immunopharmacology unit at INSERM. Moreover the research unit itself, U-200, was also supposed to be closed down by the end of

the year, Benveniste claiming that he was the victim of "ideological repression"<sup>4</sup>.

Other forces have meanwhile been at work, however, for due to the subsequent verification of his findings at other independent institutions and the establishment of their apparent irrefutability, Benveniste has been accorded certain international recognition and 'notoriety' in the interim. Fearing that it would suffer the same scorn it had heaped on Benveniste, INSERM have continued to pay his and his secretary's salaries, although it has withheld all funding for further research and refused any allocation for other day-to-day expenses and the employment of laboratory staff, for which Benveniste himself must pay. On a happier note however, while INSERM continues to maintain its obdurate stance, other more enlightened individuals have deemed Benveniste's research on water to be so important that an organisation 'Science Innovative' was formed with the specific purpose of providing him with moral support and financing his currently on-going research.<sup>5</sup>

Returning now to the description of the full hydrological cycle, the water first evaporates from the oceans and the forest. The rising water vapour cools with altitude, condenses, forms clouds, aggregates into larger droplets and precipitates as rain. Precipitation occurs when two systems combine, which in their separated condition float within the ambient energy-field, be it of liquid or aeriform nature, thus creating a mass in excess of the volume of air or liquid they displace. With full forest cover the ground temperature is cooler than the incident rainwater which infiltrates the ground under the influence of a positive temperature gradient, i.e. the temperature decreases from the air through the ground towards the +4°C anomaly point of water in the central stratum of the groundwater body. Falling on the cooler ground, the warmer rainwater is readily absorbed, the groundwater is recharged and aquifers and subterranean waterways are developed. Rainwater can only infiltrate under a positive temperature gradient. A corollary of this is that the maintenance and the height of the groundwater table is wholly dependent amongst other things on the

amount of infiltration and the presence of a positive temperature gradient.

Recalling that the temperature of absolute zero is -273.15°C and that the temperature spectrum in which we live lies roughly between -10°C and +40°C, any general change in a downward direction would have the direst consequences not only for our continuing existence on this planet, but for all other life-forms as well. It is therefore of vital importance to our survival that this bandwidth of temperatures, largely determined and regulated by the amount of water vapour in the atmosphere, should remain unaltered. Moreover, any activity of ours which reduces the naturally occurring water vapour content of the atmosphere should be prevented because it will inevitably lower the World's overall temperature. This is because there will no longer be sufficient water to retain the prescribed amount of heat.

Although all the evidence is there in the way of deserts, it seems that mankind has never learnt that to take away the trees is to take away the water. It is the forest cover that is responsible for fine-tuning the content of water vapour in the atmosphere and for the creation of fresh water itself. Through the continuous removal of forest, we will gradually approach the condition where what we might term the 'base quantity' of water provided by the oceans, which raises the atmospheric water level to a certain degree, is no longer tempered by the additional transpiration from the forest. It is this which augments the overall amount of water vapour both quantitatively and qualitatively, and at the same time raises the ambient temperatures sufficiently to enable us to exist.

Unfortunately this alarming disturbance of the natural cycles is already far advanced. The increasingly chaotic weather patterns we presently experience are merely the legitimate consequence of an ever more disorderly and fragmented distribution of water vapour. In some areas there is an excessive concentration, resulting in an over-accumulation of heat, a sharp rise in temperature, massive downpours and flooding, while in others there is virtually no water vapour at all, producing both severe drought conditions and premature, local cooling. The combined effect of both these



processes is to provoke increasingly frequent and violent storms as these two extremes of temperature clash together in the process of restoring Nature's equilibrium.

## 9.2 The Half Hydrological Cycle

**I**n contrast, the half hydrological cycle is the condition that presently prevails almost worldwide. The half hydrological

cycle shown in fig. 9.2 has the same basic format as the full cycle, but in this instance the trees shown in fig. 9.1 have been removed from the land surface; note that the heavy broken line, representing the sub-surface movement of groundwater is missing. The type of evaporation changes, since it is no longer sourced from living things, but from barren ground, and may well be the repository of destructive rather than creative energetic imprints.

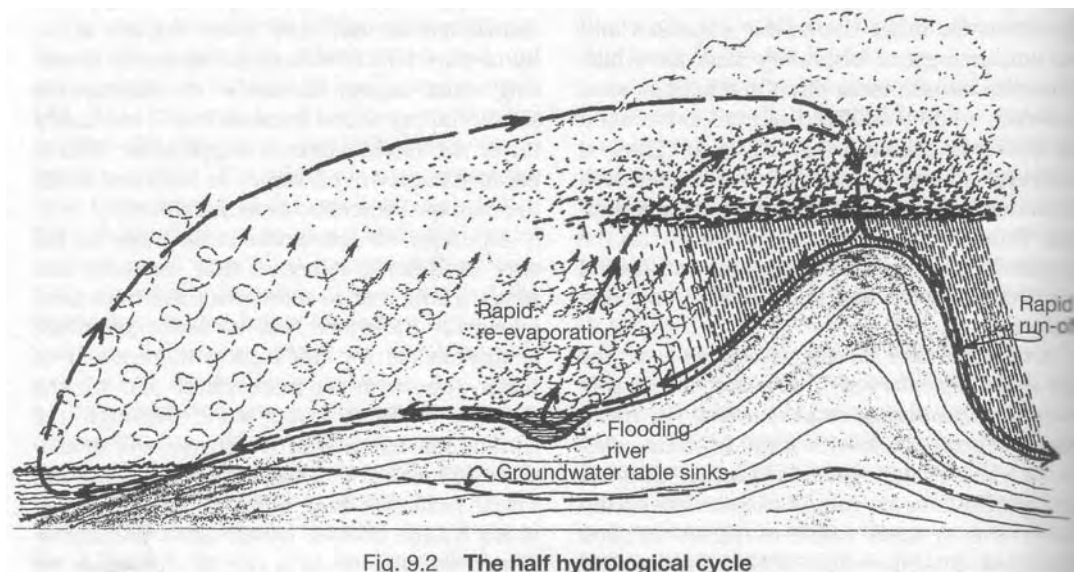


Fig. 9.2 The half hydrological cycle

The "HALF CYCLE", in contrast, has the following features:

- Evaporation from ocean;
- Rising water-vapour;
- Cooling and condensing;
- Formation of clouds;
- Precipitation as rain;
- No infiltration of rainwater due to negative temperature gradient;
- Rapid run-off over the ground surface;
- No groundwater recharge;
- Sinking water table;
- Cessation of natural supply of nutrients to vegetation;
- Under certain conditions, major flooding can occur;
- Excessively fast re-evaporation;
- Over-saturation of atmosphere with water-vapour;
- Rapid reprecipitation as storm-rain.

One flood therefore produces the next, or no rain falls at all and drought conditions prevail.

Once the forest has been removed, the exposed ground heats up rapidly, all the more so if dry, and to much higher temperatures. A negative temperature gradient now prevails, because the ground temperature in general is hotter than the incident rain; in other words the temperature increases from the clouds into the ground. If the rainfall is excessive, then flooding inevitably occurs. We have all seen how cold water sizzles and skitters rapidly sideways when it falls on a hot-plate. A hot, dry ground-surface, produces the same effect, making it impossible for the rainwater to infiltrate and in many hot countries denuded of vegetation, dry valleys and creeks are suddenly engulfed by a wall of water as terrifying flash-floods sweep away everything in their path. With no longer any trees to absorb it, the surface water runs off immediately, spreading over wide areas, thereby increasing the rate of evaporation locally. This overloads the atmosphere with water vapour and flooding is either soon repeated or precipitation occurs elsewhere, sometimes far away from the original source of the water vapour, and devastating drought ensues regionally. One flood therefore begets the next, or precipitates drought conditions. Over the last few years we have all become aware of the increasingly disastrous flooding worldwide, a process that under the present conditions is self-perpetuating. In December 1993, for example, the record flooding of the Rhine caused inundations not seen since 1743. This was repeated in even more devastating measure in January 1995. Until a sufficient number of trees are replanted; not just a billion, but several hundred billions, we will be subjected to the unrelenting, merciless cycle of drought, flood, drought, flood, particularly in equatorial and warm temperate zones. There is only one solution and that is to reafforest this planet on a massive scale - now!

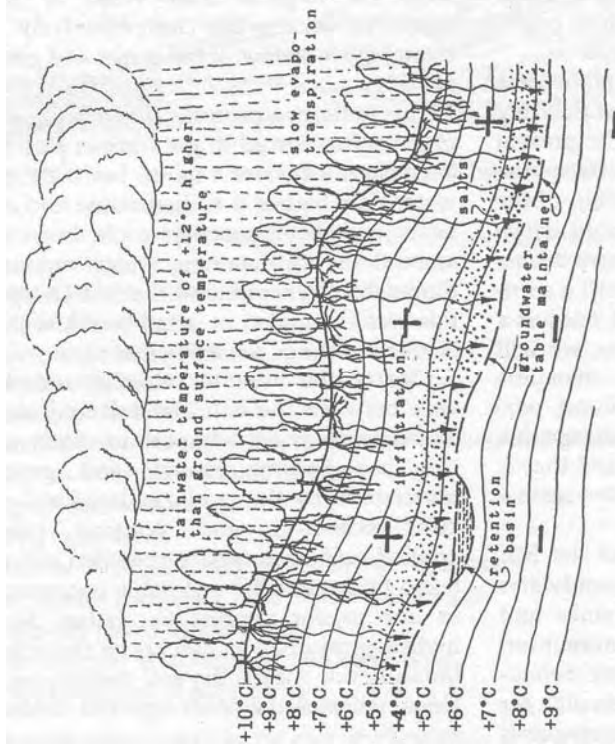
A further horrific consequence of the half cycle is that there is no groundwater recharge, the groundwater table sinks and the supply of nutrients to the vegetation from below ceases. This is what Viktor Schaubberger called a 'biological short-circuit', for apart from the rapid transfer of substanceless

water to the atmosphere, under a half hydrological cycle the nutrients present in the upper zones of the groundwater table, which are normally raised up by the trees to a level accessible to other lesser plants, are left below and sink with the sinking groundwater. It subsides to levels far beyond the reach of even deep-rooted trees, taking all soil moisture and trace-elements down with it. No water, no life and the desert reigns supreme. The groundwater is virtually lost forever, vanished into the bowels of the Earth from whence it originally came.

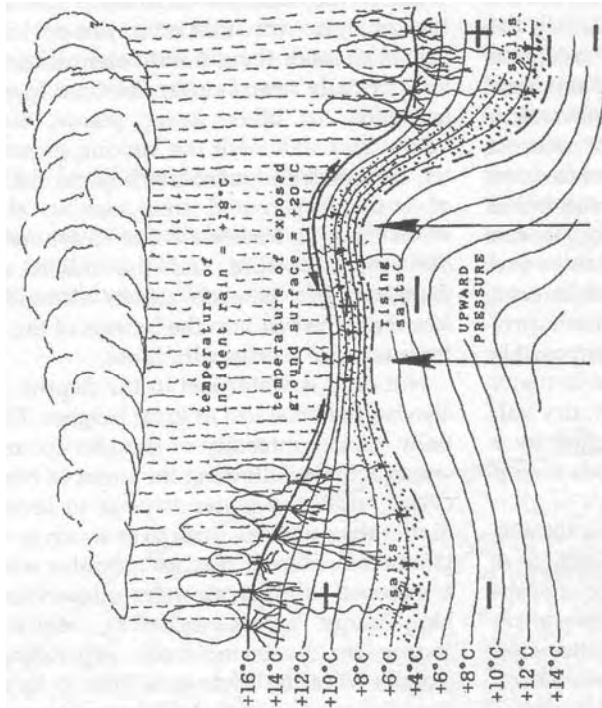
Not only is water lost in the depths, but it also begins to be lost at great heights. The initially greater intensity of thunderstorms and storm activity following the onset of the half-cycle, raises the water vapour to levels far higher than normal, even to as much as 40-80 kilometres. Here it reaches altitudes where it is exposed to much stronger ultra-violet and high-energy gamma-radiation, which dissociate the water-molecule, separating the oxygen from the hydrogen. Due to its lesser specific weight the hydrogen then rises, while the oxygen sinks. Worst of all, all that was once water has effectively been removed altogether. It has gone, and gone for good.

This initiates a process, in which the atmosphere is first forced to get warmer due to the overcharge of water vapour, but then, as the water rises higher, it is dissociated and disappears, and the atmosphere cools, because the amount of heat-retaining water vapour has diminished. What follows is a new ice age. All this was elaborated in detail in Viktor Schaubberger's writings some 60 years ago.

Clearly, the hitherto unrecognised difference between the half and full hydrological cycles is extremely important. Only when this has become known and generally understood by the public at large and sufficient economic and political pressure applied, can appropriate remedial action be taken to counter the inevitable outcome. It is in our urgent interest to restore the full hydrological cycle as quickly as possible, for the full cycle means life and continuing existence, whereas the other signifies death and extinction.



**Fig. 9.3 Positive temperature-gradient**  
**Ground cooler – rainwater warmer:** Incident rainwater with a temperature higher than the receiving ground-stratum can infiltrate readily into the ground. Recharge of the groundwater and the formation of subterranean retention basins occurs. The supply of nutrients and moisture to the vegetation is regular. The salts (shown as dots) remain just above the groundwater table.



**Fig. 9.4 Positive and negative temperature-gradients**  
 Under conditions where both types of temperature-gradient are active (positive under the forest, negative under the exposed ground), infiltration mainly occurs in the forested area, where the salts also remain well below the ground-surface. Where the ground has been exposed to the sun's heat, the watertable is temporarily forced upwards by the geothermal pressure from below, bringing up the dissolved salts with it. With less than normal rainwater infiltration in this area, the salts remain near the ground-surface. Groundwater recharge is variable and problems of salination are incipient.

### 9.3 Temperature Gradients and Nutrient Supply

We shall now examine the temperature gradients in the ground and their effects in connection with figs. 9.3, 9.4 & 9.5, because the solution, transport and deposition of nutrients are all functions of the temperature gradient. Positive and negative temperature gradients produce opposite effects. The direction of the temperature gradient indicates the direction of movement. The direction of energy or nutrient transfer is always from heat to cold. Viktor Schaubberger's important principle on this subject states that under the exclusion of light air the precipitation of salts and minerals occurs with cooling, whereas with exposure to light and air precipitation takes place with heating. In both cases the highest quality matter is precipitated last. In the former case all the various nutrients and salts are deposited well below the ground surface as the water cools to  $+4^{\circ}\text{C}$ . In the latter case, however, due to heat-evaporation and little penetration, the lowest quality nutrients are precipitated at the surface, which not only has dire consequences for soil fertility, but also for the proper formation of trees, as we shall see later. To recapitulate, a positive temperature gradient occurs when the incident rainwater is warmer than the receiving soil. This naturally implies that the soil is protected from the heating effect of the Sun by trees and other vegetation and, if the whole surface of the Earth is forested, then the groundwater table hugs the configuration of the ground-surface. As shown in fig. 9.3 the water infiltrates down to the lower strata, the groundwater body and aquifers are recharged, subterranean retention basins are created and the salts (shown as a dotted mass) remain at a level where they cannot contaminate the upper strata and are not damaging to those plants unable to metabolise them. Should a part of the forest be felled and the ground surface exposed to the direct light of the Sun, as in fig. 9.4, the temperature of ground in that area rises.

With this in mind it is essential that if any felling is to occur, then the trees should never be cut at the top of a hill. This creates a bald patch exposed to the Sun's heat and effectively

reduces the capacity of the groundwater to rise as high as it might otherwise do were the trees left untouched. If the temperature of the incident rainwater is, say,  $+18^{\circ}\text{C}$  and the temperature of the receiving ground surface  $+20^{\circ}\text{C}$ , the rain will not penetrate, but will flow off laterally to areas where it can, always presuming that a healthy balance between open space and forest has been maintained. In such a case problems of salinity will be kept to a minimum, since the overall level of the groundwater table is not unduly affected.

It does rise, however, under the areas where the trees have been removed, due to the geothermally induced upward pressure from below and the reduction in the quantity of overburdening groundwater lying above the  $+4^{\circ}\text{C}$  centre-stratum. In other words the counteracting downward pressure has been diminished. (This effect is discussed in more detail in chapter 10.) As this water rises so too are the salts elevated, though in this case not into the root-zone of the vegetation. However, if all the trees are removed (fig. 9.5), then there is no rainwater penetration at all, the groundwater table initially rises, bringing up all the salts with it, only eventually to sink or disappear altogether, because under these conditions no recharge is possible. This is how oversalination of the soil occurs, and the only way the problem can be remedied is to recreate a positive temperature gradient through reafforestation.

In the beginning such trees will have to be pioneer, salt-loving trees and other primitive plants, such species being the only ones that can survive under such conditions. Later, as the soil climate improves and its salt content diminishes, other species of tree can replace them since, over a period of time and due to the cooling of the ground by the shading of the pioneer trees, the rainwater enters the ground, taking the salts with it. Eventually the pioneer trees die off, because the evolved soil conditions are now no longer suitable, and the dynamic balance of Nature is restored.

Irrigation only exacerbates the problem, because during the night the ground temperatures cool somewhat, allowing the irrigation water to percolate a certain distance into the upper, now salt-containing strata. There it collects the salts and, with the increase in

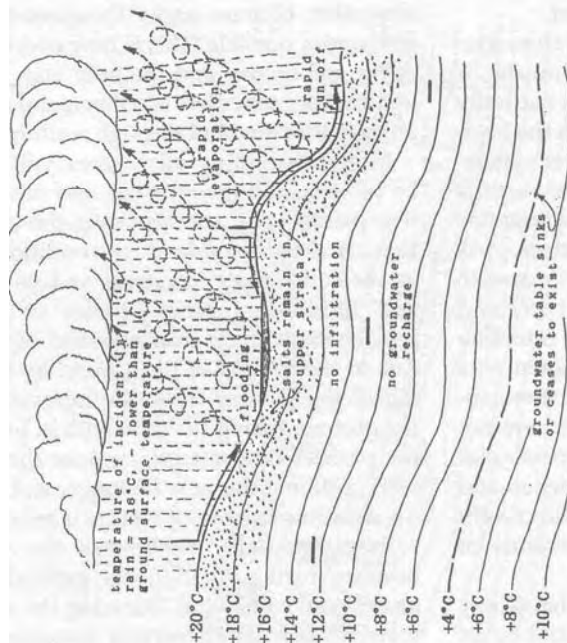


Fig. 9.5 Negative temperature gradient

**Ground warmer – rainwater cooler:** With the overall clearing of the forest, the ground is everywhere exposed to the harsh light of the Sun. The ground heats up and any rainfall will always be colder than the ground-surface. No infiltration of rainwater occurs and hence no groundwater recharge. The groundwater table, if it exists at all, lies very deep below the ground-surface. Any infiltration of water (mostly only possible with cooler night temperatures) only serves to bring additional salts to the surface on the following day, exacerbating problems of salination.

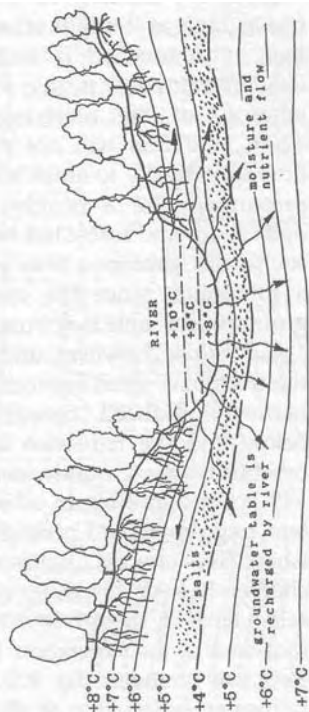


Fig. 9.6 Positive temperature gradient

When the temperature of the river water is warmer than the adjacent ground temperatures, a **positive temperature gradient** exists. The direction of the transfer of energy and nutritive material is from the river to the soil. According to their relative temperatures and depths, the adjacent ground strata are infused with fresh moisture and the surrounding vegetation is revitalised with additional nutrients. Under these conditions the groundwater table is also recharged.

temperature during the day, the atmosphere rises as it becomes specifically lighter, drawing up the infiltrated irrigation water plus its acquired salts, which through exposure to light and heat are deposited, and through

evaporation are left lying in the uppermost soil level. The problem of salination varies according to latitude, altitude and season, since these also affect the ambient ground temperatures, the intensity of the Sun's radia-

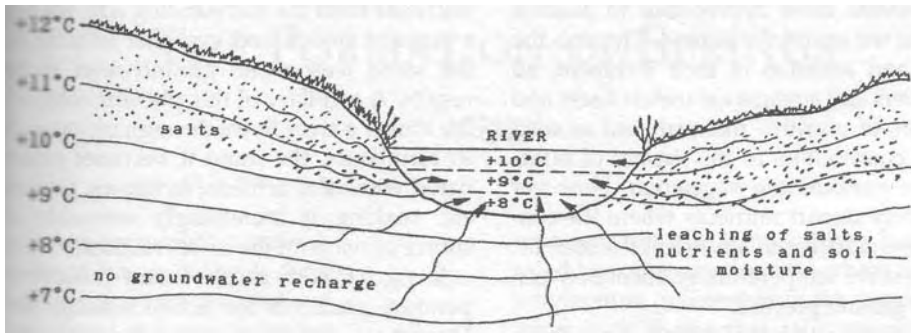


Fig. 9.7 Negative Temperature Gradient

If the ground temperatures are hotter than the river water, then a negative temperature gradient from river to ground exists and the transport of nutrients and salts takes place from the ground strata to the river. The ground strata are leached of their various minerals and trace elements, leading to a nett loss of biochemical material. Increasing soil infertility and river salinity results. The groundwater table also sinks for lack of resupply.

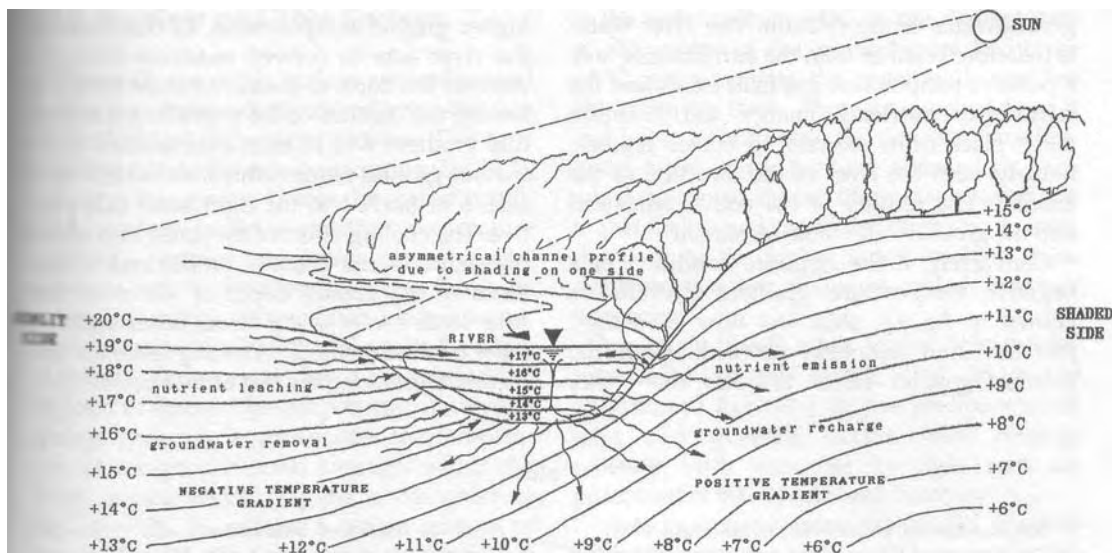


Fig. 9.8

The orientation of a river relative to the general position and height of the Sun also affects the nutrient supply. In stretches of rivers where the flow is either east->west or west->east, the side nearest the sun tends to be shaded more frequently. The water on this side is therefore cooler and on the opposite side, warmer. This produces an asymmetrical channel profile as the result of an asymmetrical temperature distribution. Should the side nearest the Sun be suitably forested, then the ground temperatures on this side are also cooler and a positive temperature gradient exists in the direction river->ground, permitting the absorption of moisture, trace elements and nutrients from the river. If the ground-surface on the opposite side of the river has been cleared, the ground temperatures there will be hotter, a positive temperature gradient then prevails in the direction ground->river, leading to the absorption of soil-moisture and nutrients by the river. One side of the river therefore tends to be more fertile than the other.

tion and the length of the periods of the ground's exposure to heat.

There are other conditions which also pertain to nutrient flow and, while slightly out of place here, since rivers and stream management will be discussed more fully in later chapters, it nevertheless seems more appropriate to address them while we are on the subject. Through the corrosion and abrasion of their sediment, all healthy rivers and streams are metabolisers and transporters of nutritive material, and as such are major contributors to the supply of nutrients to the surrounding vegetation. However they can only impart nutrients where the conditions are conducive to a nutrient transfer, i.e. where a positive temperature gradient between water and ground prevails.

Fig. 9.6 shows a river flowing through an entirely forested area. As an illustration the river water has a temperature range of between +10°C and +8°C from surface to riverbed. In contrast the ground temperatures under the forest are cooler, ranging from +8°C at the surface to +4°C at the level of the groundwater centre-stratum. The river water is therefore warmer than the surrounding soil, a positive temperature gradient exists and the transfer of nutrients, energy and moisture takes place from warmer to cooler regions, namely from the river in the direction of the ground. The fertility of the soil is enhanced and the groundwater table recharged.

Conversely, if the opposite condition of a negative temperature gradient prevails as shown in fig. 9.7, then the flow of energy, moisture and nutrients proceeds from the warmer ground strata towards the cooler

river. Here the river actually extracts from the ground the nutrients which have themselves been raised to the upper strata due to the processes mentioned earlier and illustrated in fig. 9.5 above. This results in an increasing leaching of the minerals, trace-elements and nutrients from the surrounding soil, leading to a nutrient deficit and eventual infertility. For the same reasons no groundwater recharge results. A corollary of this phenomenon is that the longer a river flows through irrigated, sunlit farmlands, the more it becomes contaminated with salts, artificial fertilisers, pesticides etc. making it increasingly unusable as a source of water in the lower reaches.

In fig. 9.8 both negative and positive temperature gradients are active simultaneously. Here the variation in river water temperature, again for the purposes of discussion, is from +17°C at the water surface to +13°C at the bottom. The ground under the forested area on one side of the river has lower temperatures than the river water, whereas the cleared, treeless land on the opposite side gives rise to higher ground temperatures. In this instance the river acts to convey nutrients from the warmer left bank to the cooler right bank following the dictates of the prevailing temperature gradient which, from examination of the various ground temperatures, on the left hand side is negative and the right hand side positive. The cooling effect of the forest also affects the shape of the channel profile and is mirrored in the greater depth of water on that side, since cooler water flows faster and in a more laminar fashion, removing sediment and thereby deepening the bed at that point.

## Notes

1. British scientific journal *Nature*, 30th June 1988.
2. *The Memory of Water — Homeopathy and the Battle of Ideas in the New Science* by Michel Schiff, Thorsons, an imprint of Harper Collins, 1995, ISBN 0-7225-3262-8.
3. Information from Brauer Biotherapies, 1 Para Road, P.O.Box 234, Tanunda 5352, So. Australia.
4. *Nexus New Times* magazine, Vol.2, No.17, Dec.1993-Jan.1994, quoting from *New Scientist* 23rd October 1993.
5. Christopher Bird has kindly supplied information from Mme Annie Asada, director for develop-

ment at 'Science Innovative', and from Jack Dupre, a close associate of Dr. Marie Nonclerce pharmacist and author of a book on Antoine Bechamp; (Louis Pasteur, Bechamp's contemporary, was responsible for suppressing his significant findings). 'Science Innovative' was set up by Mme. Evelyn Besso who is also its President S.I.'s headquarters are presently situated at 30 Ave. D'Elyau, Paris 75116 (tel: 01.4656.6650). Its aim is to foster enquiry and interest into the essential nature of water, and to support Jacques Benveniste's continuing research.

# 10

## THE FORMATION OF SPRINGS

There, where water splits in twain,  
Life is ere set free, unfolding its domain,  
And in emerging from its source,  
Water's blessed with vital, living force.  
There flock beasts, athirst for flowers,  
Midst thrusting boughs and leafy bowers.  
"God, Nature and Cosmos" by  
J.W. von Goethe

### 10.1 Seepage and True Springs

Generally speaking, springs are understood as the emergence of groundwater that has encountered an impervious stratum. This type of spring is actually a seepage spring (fig. 10.1), but not a true spring. Under the correct conditions, namely under a positive temperature gradient - warmer rain, cooler ground, cooler substrata, etc - a seepage spring forms as water infiltrates, accumulates underground, meets an impervious layer and under the effect of gravity, drains away down the gradient to its point of egress. The temperature of seepage springs generally approximates the temperature of the ground-strata through which the water passes, which may be in the order of  $+6^{\circ}\text{C}$  to  $+9^{\circ}\text{C}$ . It contains a certain amount of dissolved salts and trace elements, but is not very rich in them. On the other hand, a true spring, and this is where the difference lies, is a spring which has a temperature of around  $+4^{\circ}\text{C}$ . It evolves under completely different conditions and processes.

Fig. 10.2 depicts a cross-section through a mountain and shows the various ground temperatures at different levels. These may not

represent the true temperatures, but are indicated here as examples. Since there is a positive temperature gradient from the ground-surface inwards, it means that rainwater can always infiltrate. Recalling that this is immature water, it greedily absorbs all the elements it can. Undesirable elements, salts, etc, lying in the upper strata are therefore dissolved by the percolating rainwater and carried down into the depths, where they are eventually precipitated as the water cools to  $+4^{\circ}\text{C}$ . In this densest state at the centre of the groundwater body, the  $+4^{\circ}\text{C}$  centre-stratum, the water no longer has any room for them. They are expelled from it and left in a zone above the now fresh groundwater table, where they are accessed by various deep-rooted species of trees, whose job it is to metabolise and transform them and to raise them up to the higher levels, making them available to other shallower-rooted forms of vegetation.

We might recall what Viktor Schauberger formulated on this theme, that under the exclusion of light and air the precipitation of salts and minerals occurs with cooling, whereas with exposure to light and air precipitation takes place with heating.

As the rainwater enters the ground, it exerts increasing pressure on the  $+4^{\circ}\text{C}$  centre-stratum of the groundwater body. Due to this overburdening pressure from above, the lowermost strata of the groundwater body are themselves forced downwards into regions where the ground temperatures begin to rise owing to geothermal activity. As a result, the water in these strata begins to expand, creating a counter-pressure to the pressure from above.



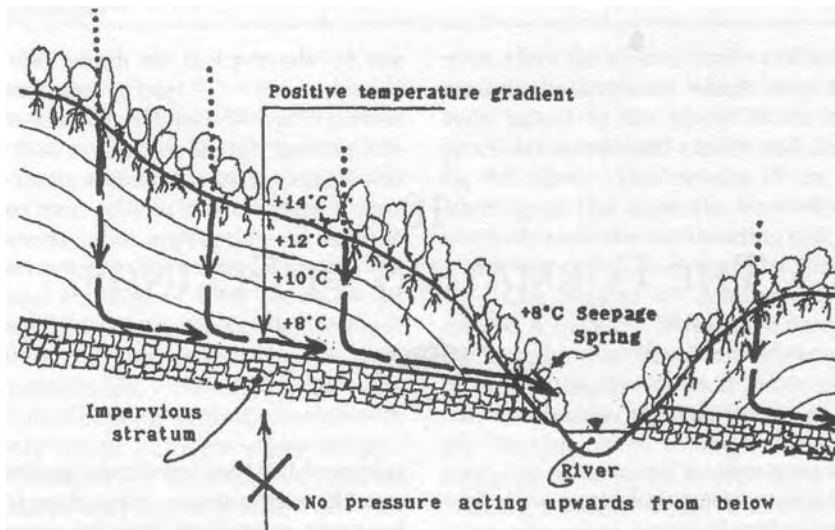


Fig. 10.1 Seepage spring

Seepage springs occur when water infiltrating into the ground (positive temperature gradient) encounters an impervious stratum. Due to gravity it seeps down the inclined plane of this stratum and emerges where this meets the outer ground surface. The rate of outflow is principally determined by the amount of infiltrated rainwater and its temperature roughly conforms to that of the surrounding strata. They are not often very cold. Establishment of a true groundwater table does not arise.

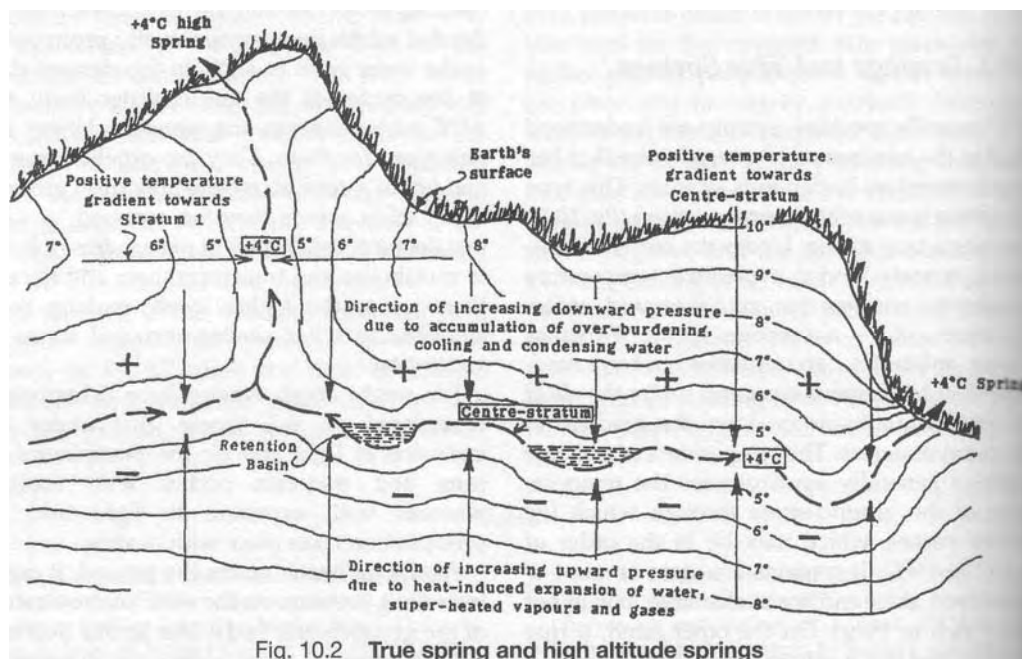


Fig. 10.2 True spring and high altitude springs

True springs come into being because of pressure acting from above and below on the +4°C centre-stratum of the groundwater, which at this temperature is incompressible. This centre-stratum is squeezed between the weight of the over-burdening water-strata above and the water-strata lying below it, which try to expand due to increasing heat from the Earth's interior. Finding no other avenue of escape from this immense pressure, the +4°C centre-stratum is therefore forced to move either laterally or vertically, ultimately emerging as springs. This is why springs are often to be found near the tops of mountains, where no sufficient catchment for a seepage spring exists. True springs normally exhibit temperatures closely approximating +4°C. This combination of opposing pressures is also responsible for regulating the height of the groundwater table.

The  $+4^{\circ}\text{C}$  centre-stratum, which is incompressible at this temperature, is therefore increasingly squeezed between these two opposing pressures, namely the overburden of infiltrating water from above and the expanding, sometimes super-heated water from below. Its only possible avenue of escape is either laterally or vertically, or a combination of both

On many mountains in Austria, for example, there are springs which emerge at between 100 and 200 metres below the summit. These mountain peaks are commonly composed of solid rock and, were such springs to be attributed seepage only, there is not sufficient catchment area to provide for their continuous, year-round discharge. The temperature of these springs always lies between  $+4^{\circ}\text{C}$  and  $+5^{\circ}\text{C}$  very cold water indeed. From this it can be inferred with some certainty that true springwater arises and moves within the central core of the groundwater body. As the springwater rises, while rich in carbonates, particularly in the form of carbonic acid, it is very largely deficient in dissolved oxygen, for during the course of the water's initial sinking, various organisms and tree roots have removed whatever dissolved oxygen was available in the infiltrating rainwater. By and large such water is therefore oxygen-deficient and, this deficiency is extreme and the water is drunk directly at the place where it gushes out of the ground, its emanation of carbon-dioxide vapours are breathed in at the same time. Mountain folk in Austria call these vapours the 'waterworm'; they are also known as choke-damp and are on occasion to be found in mines, the effect of which is to do precisely what its name suggests, and if no air containing oxygen is soon available then death follows. Since the water from these so-called 'poisoned springs' has no oxygen, it actively extracts this from the tissues in the area of the trachea, esophagus and stomach, while the undiluted carbon-dioxide vapour immediately begins to attack the lungs for the same reason.

This affliction was also known as the 'vanishing lung disease,' or in plain English, 'galloping consumption'. Those who are unfortunate enough to drink much of this water are

likely to die within a few days to the accompaniment of excruciating stabbing pains in the chest. However, once the water has emerged and has flowed even ten metres, due to its convoluting, splashing, flowing motion it has already made up for the lack of oxygen through its absorption from the atmosphere and the proper carbone-oxygen balance has again been restored.

The absorption of oxygen, however, has the effect of increasing the volume of the water. At a spring in Montenegro, which flowed down a smooth, unfissured face of rock, Viktor Schaubberger made careful measurements of the volume of flow directly at the mouth and metre by metre below it. He discovered that it increased significantly. There being no possibility of any additional inflows due to the unbroken formation of the rock, the only possible answer was that this resulted from the absorption of oxygen.

## 10.2 The Rising of Springwater

In Our Senseless Toil Viktor briefly describes a 24-hour experiment designed to show the dynamics of true springs, the diurnal fluctuation in the height of the groundwater table and the flow of sap in trees. As we said earlier, there is no condition of equilibrium in Nature. The experimental arrangement shown in fig. 10.3, consists of a U-shaped tube with open connections on one arm to two capillary tubes and on the other to four capillary tubes. A certain quantity of pure quartz sand sufficient to close the internal diameter is placed in the bottom of the U-tube and saturated with salt water. The effect of this saltwater and sand is to separate and prevent direct communication between the contents of the two rising arms of the U-tube. These are then filled with fresh, high-grade springwater, containing little or no oxygen, which has not been exposed to the Sun, or other light or any atmospheric influence. The U-tube is then placed in an insulated vessel, such as a bucket, containing some ice at the bottom, and the whole filled with good, clean loam. The ice at the bottom is necessary to create an artificial zone of  $+4^{\circ}\text{C}$  at the base of the U-tube and a positive temperature

gradient from the outer surface of the loam inwards.

The whole arrangement is then placed outside under the Sun's heating influence. Once the lowest water has reached its ice-induced anomaly point of  $+4^{\circ}\text{C}$ , where it attains its highest density and weight, and the higher-lying water begins to heat up, losing its 'temperatureless' state, the water slowly rises up the arm to which the bundle of four capillary tubes is attached and overflows due to its greater communication with atmospheric influences; the water in the other arm remaining at rest.

While I have not found more explicit details of this experiment in the material in my possession, I think this upward movement is most probably due to two factors:

- 1) the conversion with warming of the carbonic acid content into carbon dioxide bubbles, which rise, pushing individual packets of water ahead of them (see description of rising sap in chapter 18), and
- 2) the suctional effect of rising atmospheric gases, which become specifically lighter with exposure to the Sun's heat.

At day's end this water column subsides with cooling, and overnight is in a state of rest, its contained carbonates now replete with absorbed oxygen and other atmospheric gases. During the night, however, the carbonate-rich water in the arm under the bundle of two capillaries becomes active. This may be due partially to its largely unsatisfied appetite for oxygen, whose supply has been limited by the fewer number of capillary tubes; also to the combined pressures of the night-cooled, therefore specifically heavier, atmospheric gases entering the now evacuated bundle of 4 capillaries; and to the marginally specifically heavier weight of the condensed gas-enriched, recently subsided water. Both of these exert pressure on the salt-water in the base of the U-tube, causing it to shift laterally. This in turn exerts an uplift pressure on the unoxygenated water in the opposite arm, causing the water to rise up the bundle of two capillaries.

This emulates the continuous temperature-, pressure- and suction-related pulsation, which is the hallmark of all natural fluid movement -

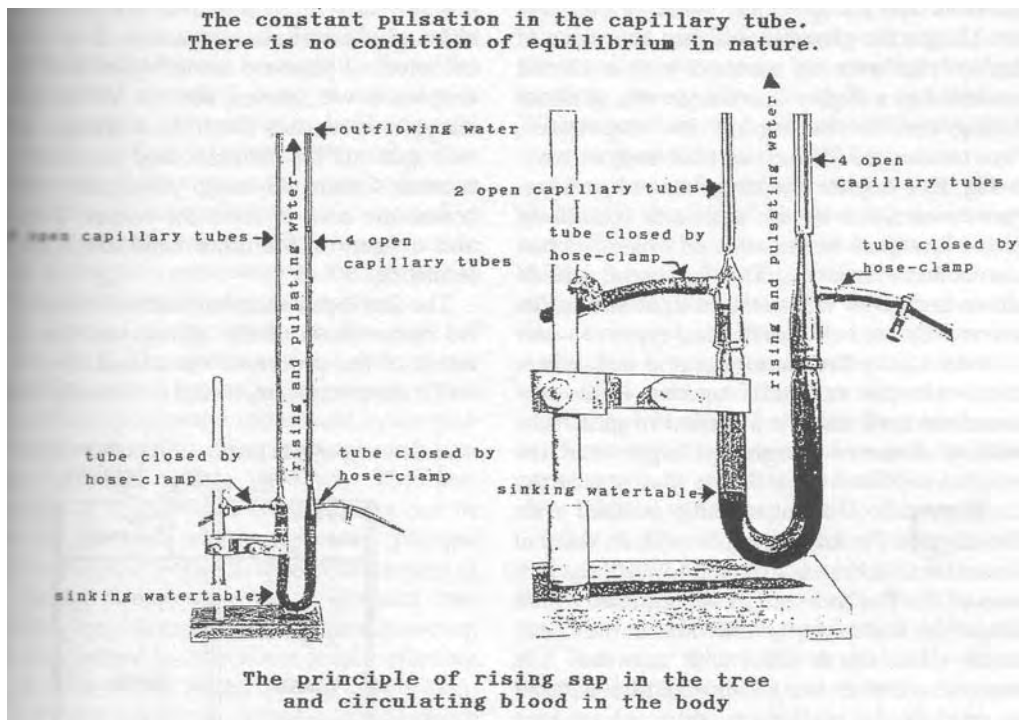
water, blood and sap. These capillary tubes are very fine, i.e. their internal diameter is minute, in this case about 0.4mm internal diameter. In terms of plant anatomy, the bundle of 4 capillaries represents the xylem tubelets. These generally have a larger cross-sectional area than the phloem tubelets, which are represented by the bundle of 2 capillaries.

What is not explained in Viktor's description is whether both arms of the U-tube are positioned parallel to the Sun's rays, or at right-angles, the 2-capillary bundle lying behind the 4-capillary bundle. Not explained either is whether both capillary bundles are to be protected from light and heat. However, as this experiment is designed in part to demonstrate the ebb and flow of sap which occurs beneath the bark, it is desirable that the capillary tubes should be adequately shielded and insulated.

If the bundle of four capillary tubes is removed, then water emerges from the top of the U-tube leg, demonstrating the formation of natural springs. On the diagram, it can be seen that the two water levels on each side of the U-tube are not in communication, but remain independent of each other, representing another phenomenon in Nature inexplicable according to current theory.

This decrease in atmospheric density close to the ground during the day is also responsible for the slight diurnal fluctuation in the height of the groundwater table. Being specifically lighter, the atmosphere exerts less pressure and the groundwater rises in consequence. The weight of the atmosphere is thus a contributing factor to the height of the groundwater table and to the rate of flow of springs, which are known to deliver more water during the night than during the day.

Another experiment showing the action of true springs and one much simpler to carry out is described in *Etidorpha* (Aphrodite spelt backwards), a book published by John Uri Lloyd in 1896. The book gives an account of the experiences of William Morgan, who was mysteriously abducted on the 12th of August 1826 which he related when he appeared to Llewellyn Drury some 30 years previous to the book's publication<sup>1</sup>. The book gives a number of interesting insights into many natural phenomena including water and its movement.



This experiment consists of the interaction between salt and fresh water as a result of their different specific gravities. Water is the basis for all specific gravities and has the value of  $1\text{g/cm}^3$ . Saltwater or seawater with a 4% salt content has a higher specific gravity of about  $1.025\text{g/cm}^3$ , depending on its temperature, thus making it 2.5% heavier than fresh water.

Fig. 10.4 depicts the experimental arrangement assembled by the author. It consists of two 4-litre glass bottles, one of which has had the bottom removed. This is turned upside down and fixed with a water-tight seal to the lower. Mixture between the two types of water is restricted by the placement of a cork where the two bottles are joined together. In the centre of the cork there is a section of glass tube with a diameter marginally larger than the hooked capillary tube. Before insertion of the capillary tube the lower bottle is filled with fresh water. The capillary tube with an internal diameter of 0.4mm is then introduced, the bottom of the hooked section being about 15mm above the surface of the saltwater in the upper bottle when this is filled with saltwater. It is suggested that a strong saline solution be used to produce the best effects, since we are here concerned with a natural process at a very small scale. Almost immediately after filling with saltwater, the fresh water can be seen to rise up the capillary and, passing over the top of the hook, it begins to form droplets. These may not fall immediately, and initially the capillary may need to be tapped once or twice. After this the fresh water continues to drop due to the effect of the heavier weight of the saltwater in the upper vessel until such time as the two waters have mixed. Dropping then ceases.

This clearly demonstrates another aspect related to the formation of true springs and mountain springs. While we have seen above that the  $+4^\circ\text{C}$  centre-stratum of the groundwater body is compressed between two opposing pressures, the pressure resulting from the weight of the infiltrating rainwater is further enhanced by the solution of salts and other elements as it descends. This gives the water additional mass, which in turn exerts a higher pressure on the centre-stratum than if the percolating water were merely fresh water.

There are, however, two additional factors at work in the movement of springwater. These are physical in nature and not mechanical, although, as we have seen above, the mechanical forces of pressure are active as well. From chapter 5 we learned that in Viktor Schauberger's view the Earth is a female entity and that all the energies and elements she secretes within her body, principally the carbonates, are also of feminine nature. The Sun and oxygen on the other hand are male and fertilising.

The first factor therefore relates to the chemical composition of the springwater itself. As result of the processes mentioned above, the  $+4^\circ\text{C}$  centre-stratum water is virtually totally

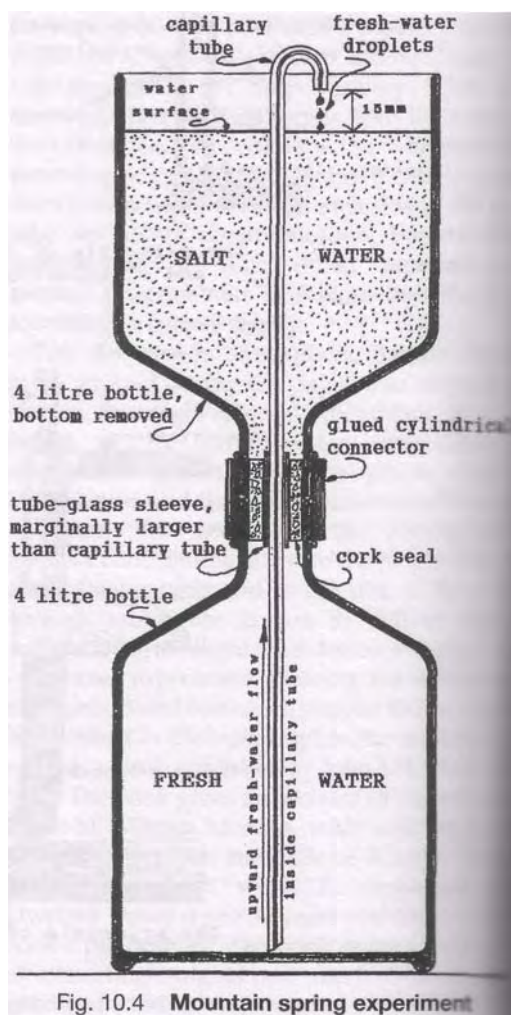


Fig. 10.4 Mountain spring experiment

deficient in oxygen, but very high in carbonic acid and other carbonates obtained by its passage through coal-bearing and other mineral strata. From this arises a powerful mutual attraction as the female fructigenic ethericities (non-physical energies) seek to unite with those of oxygen, the seminal or fertilising substance. The uprising of springwater is therefore enhanced by this hunger, as it were, because in the process an energetic vacuity is created in the carbonate-rich water which wants to be filled, giving the centre-stratum the impulse to move to wherever the oxygen is waiting. The second factor concerns the type of motion itself. The uprising of the springwater is greatly assisted by the actual way in which the nascent springwater moves and by the particular shape of the rising underground passages through which it flows. The best example of this sinuous configuration can be seen in glaciers, where meltwater plunges down crevasses in the ice. Due to the motion of the falling water, these are sculptured into twisting, convoluting shapes; shapes, however, that are created by the water itself, reflecting the way in which water likes to move naturally. By turning these crevasses upside down so to speak, we then get some idea of the shape of the shafts in which springwater comes to the surface.

The form of movement these shafts induce is that of the cycloid-spiral-space-curve which, as mentioned in earlier chapters is responsible for the Earth's floating motion in space and is associated with the forces of levitation. Because of its incompressibility at  $+4^{\circ}\text{C}$ , it is therefore the combined effect of these two additional factors of oxygen-hunger and the generation of levitational energies that permits springwater to overcome the forces of gravity and gush forth all year round and often in large quantities from the tops of mountains where, incidentally, they are also exposed to reduced atmospheric pressure. Although they lack oxygen, both mountain springs and true springs generally emerge into the light of day from dark clefts and shaded niches so as to avoid the direct light of the Sun, exposure to which may cause the spring to dry up. A case of this was when, one day on a high plateau in the mountains with his foresters,

Viktor Schauburger passed by a ramshackle dome-like stone construction from which water, apparently from a spring, was flowing. Since it was very dilapidated and might have presented a danger to his employers when hunting, he ordered it to be demolished. Whereupon he was told that if this was done the spring would vanish.

Always of an inquiring turn of mind, Viktor said that it should still be dismantled, but very carefully with the place of each stone marked in case it had to be rebuilt. On another excursion about a week later, he noticed that the flow of water had ceased. The spring was dry. As sources of good water on this high plateau were infrequent and therefore important during time of hunting, he hurriedly summoned his foresters and game wardens and had the cupola carefully reconstructed as before. A few days later the spring began to flow again.

What happens to the water after it has emerged from the spring and how it flows on its gushing, gyrating, whorling path down into the valley will be mainly addressed in chapter 13. The way water moves naturally is of extreme importance for its inner health and vitality. According to Viktor Schauburger, so subtle are the factors here concerned that even the first two curves the water makes after leaving the spring can have an effect up to 10 kilometres downstream. Therefore if we wish to ensure the maintenance of these qualities in our rivers and the water we drink, then careful attention must be paid to what follows in subsequent chapters.

### 10.3 Energy from the Deep Ocean

This heading may appear slightly out of context here, but while the formation of true springs is still fresh in our minds, it would seem appropriate at this juncture to examine a method of generating unlimited amounts of virtually free energy directly from the deep ocean, since this can be achieved using the same principle. As a means of generating energy, it is not only wholly sustainable and non-polluting, but it will also render all other contemporary systems of power generation obsolete. All the highly complex machinery

and mechanisms presently used for such purposes will be relegated to the scrap heap.

It will become clear from what follows that nuclear power, in particular is no longer any kind of economic option. It never was in the first place, except perhaps in the short-term. With all its vast associated costs and the ever-present and known perils of radiation leakage, the inescapable, immense costs of safe storage of fissionable material after decommissioning have never really been included in the economic equation. These costs have always been hushed up, because they will have to be borne by many generations to come.

Plutonium, one of the principle end-products of nuclear fission, has a half-life of 25,000 years. That is to say that after 25,000 years its level of radioactivity has been reduced to a half, but all the while during storage its lethal energies are gnawing away at their containers. After another 25,000 years the radioactivity will have been reduced to a quarter, and so on. 2,000 years is almost beyond human comprehension, let alone 25,000. Once the public at large has become aware of this other source of cheap, unlimited and totally environmentally friendly power, the nuclear lobby will be seen to be mouthing empty phrases in defence of its life-annihilating industry.

The principle upon which this new form of energy production is based is here set out clearly for all to see. This has been done to ensure that no individual and no large corporation will ever be able to obtain a patent on it, which would enable them either to suppress it or to create a monopoly for themselves to the great detriment of the rest of humanity, which has often been the case in the past. Once a principle has been published it is no longer patentable and becomes the property of the general public and therefore freely available to all people. This principle and the processes associated with it are so simple that as Viktor Schaubberger said:

Our energy technologists would abandon contemporary methods of generating electricity did they but know that this can be obtained directly from the deep sea by means of the simplest apparatus. These devices and instruments, which would lift the world off its hinges, however, would be rapidly superseded

and find their way into museums, because mankind has no need to go to such lengths to obtain light, heat and other forms of energy in any desired quantity almost without effort or expense.<sup>2</sup>

It is a known fact that when deep-sea or abyssal fishes are brought up to the surface they burst open. This is generally attributed to the different construction of their skeletons, which are far less robust than those of their counterparts in surface waters around the coasts. It has long been assumed and explained from a purely mechanical point of view, that the rupture of their bodies is caused by the enormous reduction in pressure during their ascent to the surface, which they are unable to withstand. This is a serious, though understandable misinterpretation of the true causes, however, whose origins lie in the physical differences between surface and abyssal waters. Dwelling as they do in waters with minimal oxygen content, the carbone-oxygen balance in the bodily tissues and the blood of these creatures is weighted very much in the carbone's favour. Moreover, such seawater as they do contain is equally deficient in oxygen. Therefore, like the growth of carbone-rich springwater exposed to atmospheric oxygen, the carbones in the bodies of these fish have a similar affinity and hunger for oxygen, whose absorption, as they are raised from the deep, causes their tissues to explode.

As was explained in the formation of true springs, the +4°C water in the centre-stratum of the groundwater table is largely deficient in male, fertilising oxygen due to the latter's consumption by living organisms, tree roots and so on, but does contain a high concentration of female, fructigenic carbones. Incompressible at +4°C and subject to intense pressures from above and below, this oxygen-starved water hungry for male essences, is partially squeezed and partially lifted to the highest mountain peaks.

In fig. 10.5 it can be seen that the same physical conditions inhere at great depths in the sea, the only difference here being that the oxygen has been consumed by millions of fish and other aquatic life-forms. According to Viktor Schaubberger, here the +4°C saltwater centre-stratum may often be fresh due to the



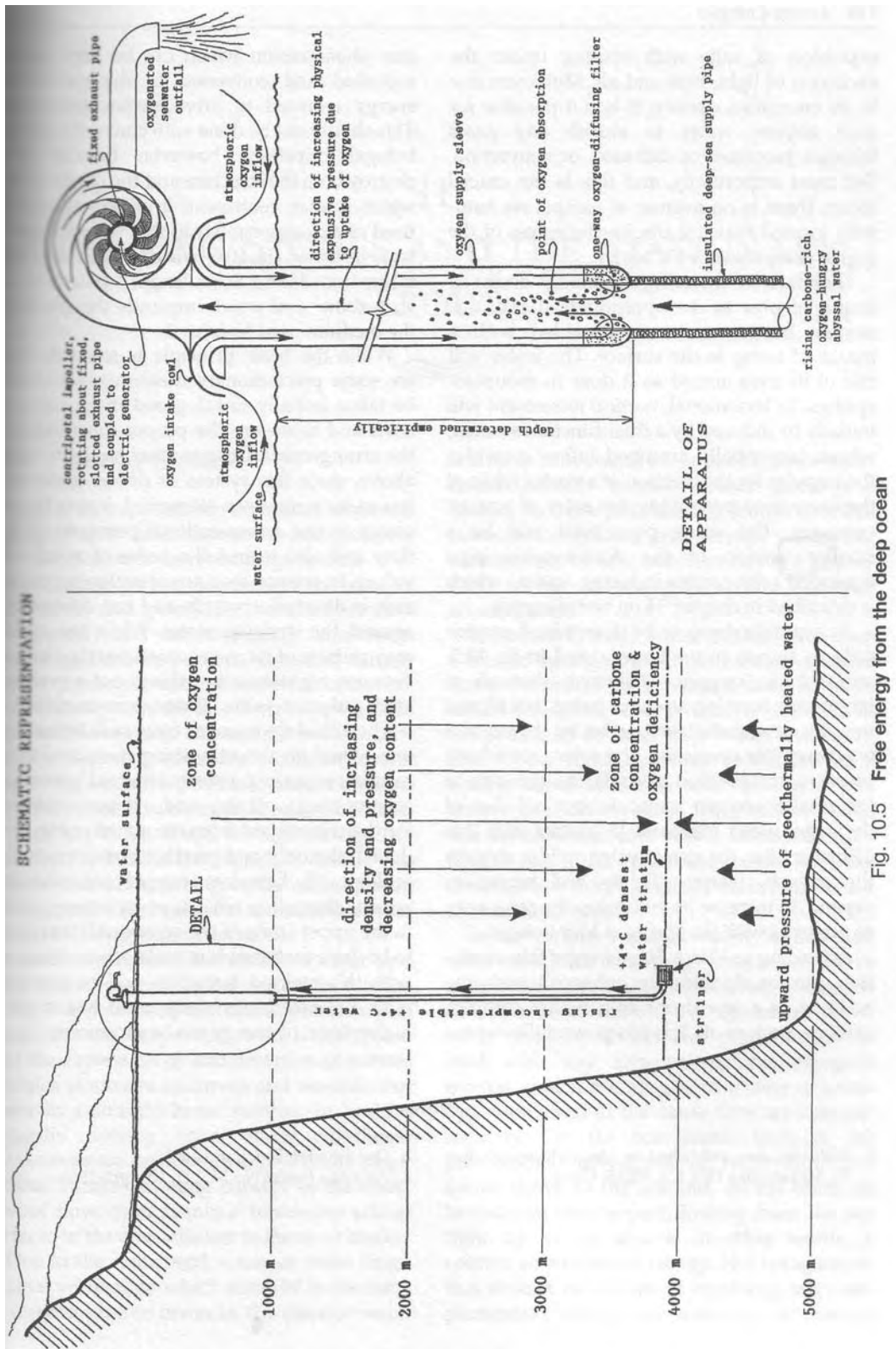


Fig. 10.5 Free energy from the deep ocean



expulsion of salts with cooling under the exclusion of light, heat and air. Moreover, due to its enormous density, it is not possible for such abyssal water to absorb any gases through processes of diffusion or convection. But most importantly, and this is the crucial factor, there is no avenue of escape, no naturally formed rising shafts for the egress of the highly compressed +4°C water.

Therefore by lowering a suitably designed length of pipe to the appropriate depth, this oxygen hungry water is provided with a means of rising to the surface. The water will rise of its own accord as it does in mountain springs. Its levitational, vortical movement will initially be induced by a dual-function strainer, whose tangentially arranged inflow provides the impulse for the creation of a vortex while at the same time preventing the entry of aquatic creatures. The rising pipe itself will be a smaller version of the double-spiral pipe equipped with vortex-inducing vanes, which is described in chapter 14 on water supply.

At a certain depth to be determined empirically as shown in the larger detail in fig. 10.5, atmospheric oxygen, delivered through a larger pipe forming an outer jacket, is diffused into the oxygen-deficient water by means of a one-way filter consisting of a substance whose physical composition permits the passage of the smaller oxygen molecule, but not that of the larger water molecule. In contact with this diffusive filter, the rising water rapidly absorbs the oxygen, warms slightly and begins to expand, to increase its volume in the same way as occurred with the spring at Montenegro.

According to Viktor Schaubberger this expansion can be significantly enhanced with the addition of a few drops of a highly complex carbene, such as oil. It is this powerfully expan-

sive phenomenon which can be very simply exploited and converted to the mechanical energy required to drive electric generators. This should not be done with conventional centrifugal impellers, however, because they destroy both the structure and the quality of the water. Rather, centripetal impellers should be used of a design similar to that shown in large scale detail in fig. 10.5, which in this case was taken from Viktor Schaubberger's patent for an air turbine<sup>3</sup> and which improves the quality of the medium used to drive it.

While the basic principle is assured, there are some precautionary measures that should be taken initially to safeguard the investment costs and to ensure the proper functioning of the arrangement. Despite what has been stated above, since this system of power generation has so far never been attempted, it may be necessary to use a conventional pump to initiate flow and also to install a series of non-return valves to ensure that any developing expansion is directed upwards and not downwards against the uprising water. While the system may pulsate of its own accord, varying in flow between night and day, this is not a problem, since pulsation is the vibrant essence of life.

The actual investment costs of this new system would be almost nothing compared to the massive expense presently required for nuclear reprocessing plants and power stations. Furthermore, apart from the actual energy produced, the only end-product of this process is ecologically harmless oxygenated seawater which, after all is what is everywhere present in the upper strata of the oceans. All that needs to be done therefore is to make a beginning, for with this method humanity will be provided with unlimited electricity until yet another higher form of energy can be produced.

## Notes

1. Etidorpha, now published by Health Research, Box 70, Mokelumne Hill, CA 95245, USA.

2. *Our Senseless Toil*, Part II, p.10.

3. Austrian Patent No.145141, 10 April 1936.

# FLOATING STONES AND THE STATIONARY TROUT

## 11.1 Floating Stones

As a living, natural organism, water is formed and functions according to Nature's laws and geometry, and inhibits none of the elements of the straight line, circle and point, the basis of modern mechanical and technological constructs, reflecting Nature's principal constant, namely that of continuous change and transformation, the vortex epitomises this form of open, fluid and flexible motion. Through his study of the vortices occurring naturally in flowing water and in the air in the form of cyclones and tornadoes, Viktor Schauburger developed his theories of Implosion. It was through the research and development of these theories that he was able to produce drinking water of mountain-spring quality and generate considerable energies in and with water and air.

What is the natural movement of water and what is the function of the vortex? In relation to all that has been discussed previously in terms of forms, shapes and so on, it can be seen that the expression or manifestation of natural energies is always in curves and vortices, but never in a straight linear fashion. In healthy, naturally flowing water these curvilinear movements are principally expressed as longitudinal vortices running parallel to the direction of flow, though minor transverse eddies do form in the area adjacent to the river banks. Due to the centripetal action of these longitudinal vortices, in which material in the form of water is drawn inwards, the densest water

is always to be found at the centre. Since water cannot actually become denser unless it is cooled, then ipso facto it is the central core that contains the coldest and densest water. The maintenance of low temperatures is a prerequisite for the continuing health and vitality of all waterways.

When fresh, lively water gushes forth from a shaded spring in the high forest, it cascades down the side of the mountain, often with torrential flows, but never overflows its banks. In the course of its descent it twists and turns, first to the right and then to the left as it whorls about one rock after another. Upon these rocks and on those lying on the bed of this crystal clear, cold water, undisturbed by human hand, the tips of the mosses growing there behave very peculiarly according to our conventional minds.

In his various writings Viktor Schauburger often stated that two energy streams are active simultaneously in healthily flowing water, but in opposite directions. As discussed previously there are always two processes associated with any form of natural energetic motion, which are always in a state of semi-opposition and at the same time are complementary. On the one hand, there is the gravitational movement of water from the spring down to the sea and, on the other, its levitational counterpart flowing from the sea right up to the source; in other words, a counter movement of energy. Not being aware that at least two forms of opposing, but complementary energy are active in all natural

phenomena, nor having seen this phenomenon for ourselves, we would imagine that the moss-tips would bend downstream due to the pressure of the fast-flowing current.

Astonishingly, the opposite is the case as was observed on many occasions by Viktor Schauburger, who regarded it as a reliable indicator of the state of health of a given stream, because both the downstream gravitational flow of matter and the upstream, levitational flow of energy were in the proper state of balance. Contrary to expectation, and despite the fact that at +4°C this water is at its most dense, the moss-tips actually point upstream against the current. This is quite inexplicable according to current hydraulic doctrine, which only treats water mechanically as an inert substance with no perception of its other physical or energetic characteristics.

However, if through deforestation this stream is exposed to the direct light of the Sun, then the situation soon changes markedly. The water becomes warmer, specifically less dense and, lo and behold, the moss-tips point downstream! They do so because the water's intrinsic energies have been depleted by the heat and the counterflow of bio-magnetic energy from the mouth of the stream up to its source has been weakened. The moss-tips therefore act like the needle on a dial faithfully recording the health condition of the stream in which they reside. This phenomenon is now almost impossible to find, because very few mountain streams have escaped the marauding hand of humankind.

But this was by no means Viktor's only encounter with the bio-magnetic energies inherent in healthy water. As a young forest warden in a large area of private forest in the early 1900s, Viktor Schauburger was constantly on the move about the forest in his care. During these years, when hunting was common practice, on one occasion while off-duty he went after a particularly magnificent chamois buck that he knew to frequent a certain area of the forest. It was a very bright, full moonlit night in the middle of winter. Having found the buck, he followed it to the edge of a very deep ravine, where he lost track of it. Keeping very still he waited for some indication of its whereabouts. Noticing a slight fall of snow on the edge of the ravine, he espied

the buck standing behind a small bush and, despite the danger of it falling into the ravine if shot, his hunting spirit got the upper hand and he fired at it.

His worst expectations were realised and the buck plunged into the ravine, hitting the bottom far below with a dull thud. Anxious to recover the much-prized horns and beard, he cast about for some way down. Losing his footing, he slid down the path of an avalanche and landed on a heap of snow at the bottom. Delighted to discover that the horns and beard had not been damaged, he removed them, afterwards going over to a pool below a waterfall, which was surrounded by ice to wash his hands.

Due to the crystal clarity of the water and the bright light of the full Moon, as he was looking down into it he became aware of a movement several metres below. Too heavy to float and colloquially called 'sinkers', a number of green logs were engaged in a strange dance. The butt of one log would suddenly rise up, move across another and then return to its former position. Then another would do the same. Totally enthralled, Viktor could not take his eyes off this uncanny phenomenon for a second. Spending several hours, wholly oblivious to the cold and with horns and beard forgotten, he stared down into the water.

More weird and wonderful happenings unfolded as some of the stones too began this rhythmical gavotte. Suddenly, one of them began to gyrate slowly along the bottom and, much to his astonishment, it gradually rose to the surface and stayed there, surrounded by a halo of ice. Thirteen more stones followed shortly thereafter. Despite his amazement at this spectacle, he still had enough presence of mind to notice that all the stones that rose to the surface were egg-shaped, having been rolled around in the bowl at the bottom of the waterfall for some considerable time. Those stones with rough and ragged edges were left lying on the bottom.

In reflecting upon this many years later Viktor came to realise that it was the combined effect of the cold, which enhanced the bio-magnetic levitational energies, and the metalliferous composition of the stones themselves that was responsible for this remarkable occurrence. Here the term metalliferous

essentially refers to silica, the name for silicon dioxide ( $\text{SiO}_2$ ) which is abundant in the Earth's crust as quartz, rock crystal, flint, in granite, sandstone etc, and silicates which are oxides of various metals such as magnesium, calcium and aluminium. As will be shown later, these metalliferous stones reinforce the energies in flowing water.

The fact that the stones actually stayed on the surface is due to another phenomenon. Even though its temperature may be well below the freezing point of  $0^\circ\text{C}$ , the water flowing in such streams in winter does not freeze as long as it is moving. When this very cold water of say  $-3^\circ\text{C}$  or  $-5^\circ\text{C}$  falls to the bottom of the pool below a waterfall, it creates a certain vortical movement. At the same time, its motion having been decelerated in the process, it has a tendency to crystallise and does so on all surfaces of the floating stones, bringing them up to the surface. Here more ice forms and holds the stones in suspension. As a result of this encounter with the floating stones, Viktor Schauberger began to realise that there were other forms which could enhance the movement of water, the egg being one of the most important, since eggs or egg-shaped bodies would appear to have a certain connection with vortical motion. A simple experiment gives an idea of what is here involved.

So as to make the experiment as fair as possible and to be able to compare the action of an egg-shaped body with that of another, a sphere - for example, a ping-pong ball - is filled with saline solution weighing slightly more than the specific weight of the contents of the egg, preferably a bantam's egg with similar surface area, in order to offset the lighter specific weight of the plastic shell vis-a-vis that of the heavier egg-shell. As the water in the cylindrical measuring jar (fig. 11.1) is stirred with a rod, the ping-pong ball just wobbles about at the bottom. It exhibits no quick tendency to rise, but will eventually do so if the stirring is vigorous enough. However, when an egg, which has a natural tendency to spin on its longitudinal axis, is used instead, it rises very quickly and will stay at the top of the jar for as long as the stirring action is maintained, which once the egg has been

raised can be considerably slowed. It could therefore be mooted that a sphere, which is not a natural form, is not particularly attuned to vortical motion.

## 11.2 The Stationary Trout

**A**s a result of the successful operation of the several log-flumes Viktor Schauberger built in the late 1920s (to be described later), whose function was incomprehensible to hydraulic experts and could not be explained

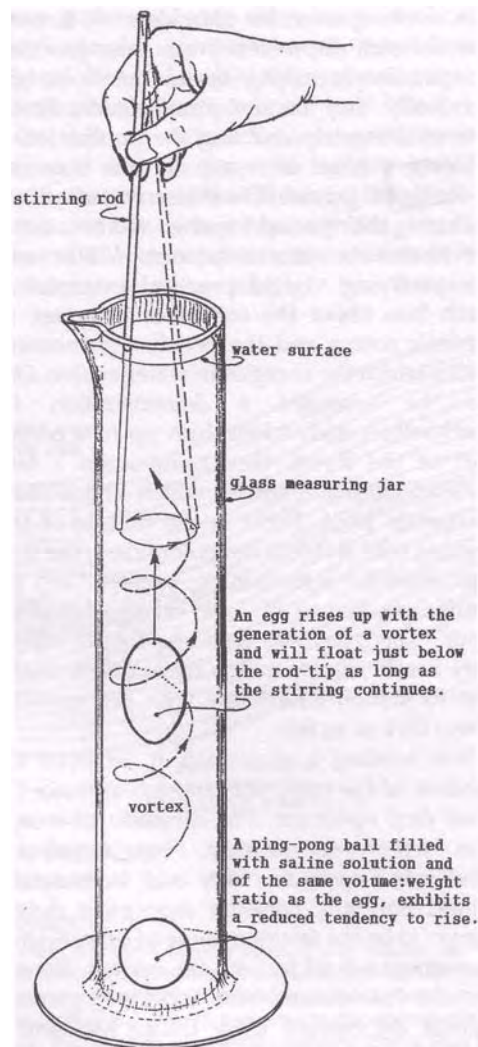


Fig 11.1 Rising egg experiment

by conventional concepts, the then Austrian government became very interested in his theories and their practical implementation, since they might be of benefit to the country as a whole. It was therefore decided to commission Prof. Philipp Forchheimer, one of the world's foremost but recently retired hydrologists, to observe Viktor Schaubерger's activities and report on them. He was to try to understand the processes, which appeared to function flawlessly, but for which there were no accepted theories.

At first Viktor Schaubерger was rather irritated at having this man trotting around after him, looking over his shoulders as it were. Forchheimer, however, was always very discreet, never asking trivial questions and eventually they became firm friends, Forchheimer ultimately enabling the publication of Viktor's treatise on water in the Austrian hydrological journal "Die Wasserwirtschaft".

During their period together, and because of Forchheimer's sincere interest, Viktor was always trying to find practical examples to teach him about the substance of water, its intrinsic nature and the peculiar phenomena under which the energies in water evolve. One day he arranged a demonstration for Forchheimer and, taking him up to a certain part of the forest, they came upon a fast-flowing mountain stream which Viktor knew to contain trout. Right in the middle of this rushing cold water at the point where the flow was fastest, Schaubерger pointed to the motionless stance of a so-called 'stationary trout'. The trout was standing totally still or very nearly so, apparently managing to maintain its station effortlessly with just an occasional flick of its fins.

Just holding a stick over it, or even the shadow of the stick, was enough to make the trout dart upstream. The direction of escape was never downstream, but it always accelerated upstream. Very odd, because one would normally consider movement downstream to be the fastest avenue of escape, since movement would be with the current. But not so, the movement was always upstream against the current. Once things had settled down and danger had passed, the trout would return to its former station. Viktor asked

Forchheimer to explain why the trout fled upstream instead of downstream and how it was able to do this. Unable to answer, Viktor then responded mischievously, "Well, Professor, it is because it never had any academic training! Were you in this gushing stream, you would be swept away!"

The process by which the trout stays motionless in flowing water is as follows: The trout always seeks out that part of the water-body, that part of the current flow where the water is densest and coldest, and the longitudinal vortex most intense. Here a factor discovered by Viktor Schaubерger plays a very important role, namely that the forward velocity of every particle of water is associated with a specific temperature. If it exceeds this critical velocity then turbulence results. Because of its bodily form, as each filament of water passes around the trout it accelerates and in doing so exceeds the above critical velocity relative to specific temperature.

In other words, due to being deflected by the mass of the trout's body and depending on its proximity to the same, in varying degrees, each water-filament is caused to move too fast (fig. 11.2). In consequence a series of vortices are created along the trout's flanks which have a component of motion in a direction opposite to the current. The combined action of these counter movements in direct contact with the hindparts of the trout's body provides the counterthrust against the downward flow of water. A zone of negative pressure or negative thrust is created within the length of the trout's body. This negative pressure counteracts the positive pressure of the water flow and the trout rests within the zone of neutral pressure its body has created.

If the trout wants to accelerate upstream, it starts to work its gills. The flapping of the gills intensifies the vortices along its flanks, which makes the ensuing upstream thrust greater than the downward pressure. The faster it flaps its gills, the faster it moves against the current, and when its gills are going at 'full bore', so to speak, it moves upstream like a streak of lightning. The increased expulsion of oxygen-deficient, CO<sub>2</sub>-rich and therefore carbon-rich water from the faster-functioning

gills also has an energising effect. The free dissolved oxygen in the stream water is almost instantaneously absorbed by the expelled oxygen-hungry carbonates causing the expansion of the water adjacent to the trout's body so that, in consort with the vortical effects and the levitational energies, the trout is squeezed forwards like a bar of slippery soap.

Considering the trout's behaviour, it is known there are some days when the fish are 'biting', as anglers say. On other days, they seem to ignore the hook altogether. The reason for this is because the water temperature is perfect, the food supply is perfect and the trout just likes to sit there and wait for all its food to float directly into its jaws. All that is necessary to alter this serene situation is a very slight change in external temperature, which also affects the temperature of the water. The water then begins to become more turbulent. As a result of the increased turbulence, the trout's food, which normally flows down the cold central axis of the current directly into the trout's mouth, is diverted from its normal

path and migrates towards the sides of the stream or river. The trout becomes agitated and casts about, hunting for its food, no doubt grumbling to itself, 'Where is my food? It's disgraceful! I actually have to work to get it!' Finally, in desperation, it jumps about, recklessly biting at anything which in any way resembles its food, because it has by this time become extremely hungry and careless, falling easy prey to the angler's hook. So before a thunderstorm or when the weather suddenly becomes warm, the fish are more likely to bite than when the weather is fairly even. Fish also tend to rise to bait in the evening because, by the end of the day, the water has warmed to a certain degree and the flow has thus become slightly more turbulent, partially disrupting the normal food supply.

On this day Viktor Schauberger had also arranged that his foresters build a fire and place a large cauldron containing 100 litres of water over it to heat up. All this occurred about 150 metres upstream from where the stationary trout was resting. Once the water

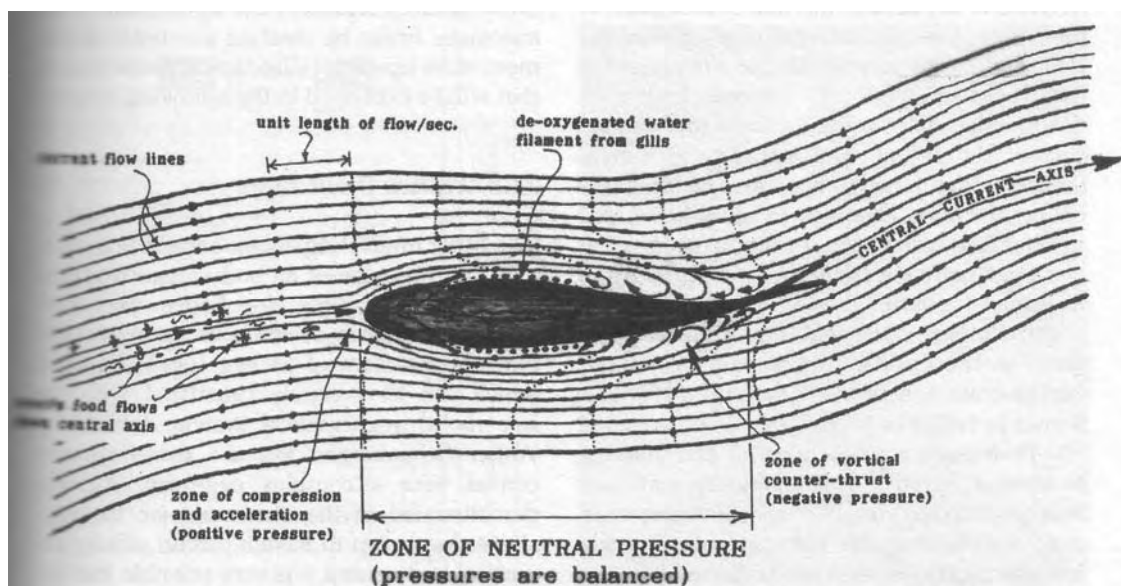


Fig. 11.2 The stationary trout

The trout normally swims in the middle of the central current vortex, where the water is densest and coldest. Due to the volume of its body, the individual current filaments are displaced and compressed. This causes their acceleration and eventually their critical velocities are exceeded, which results in the formation of vortices (counter-currents) along the rear part of the body. These vortices act counter to the direction of the current and provide the counter-thrust required by the trout to remain stationary in this fast flowing water. If it needs to accelerate upstream, then it flaps its gills, creating a further vortex train along its flanks, thus increasing the counter-thrust upstream. The more rapid the gill-movements, the faster the trout moves upwards against the current.

was hot enough, Viktor Schauberger gave the signal to pour it into the stream, while he and Forchheimer continued to observe the trout's behaviour very closely. As soon as the hot water hit the stream, the trout started to flail its tail, moving backwards all the while as it struggled to maintain its station. Something drastic had happened to the water and its pattern of energy, which normally aided the trout in the maintenance of its position. The upward flow of levitational energy had been totally disrupted by the introduction of the hot water 150m above. The trout was no longer able to stay where it was in the fast flow without effort, as was the case before.

Missing was the energy that the trout also exploits to progress upstream and to make its famous leaps, which it must do periodically in order to reach the spawning grounds, which are always to be found in the zone of high-quality water near the spring. When the hot water was introduced, this counter-movement of energy was cut. The energy was suddenly dissipated and became chaotic. All structure in terms of the natural thermal stratification of the water was lost and the regularity of the longitudinal vortex with its cold core, essential for the trout motionless stance, had been destroyed. All its valiant efforts to maintain station were in vain and it was swept downstream. Over a certain period of time the counter-flow of energy was slowly restored through the continuing descent of cold water and eventually the trout was able to return to its former position.

On another occasion, Viktor pointed out a stone in the middle of a stream and asked Forchheimer whether he thought the water would be hotter or colder after flowing past it. The Professor scratched his head and thinking to himself, "Hmm, friction; friction produces heat", answered "Hotter!" Schauberger then suggested he measure it to confirm his opinion, stating, however, that he thought Forchheimer's answer was incorrect. Equipped with his accurate thermometers and first furling up his trousers, the Professor entered the water. Viktor's son, Walter, who at the time was about 16 years old, was requested to hold onto the spindly professor's belt, lest he lose his footing on the slippery stones and be swept

away by the torrent. Forchheimer carefully measured the water temperature both above and below the stone and was very surprised to find there was a difference of about 2/10ths of a degree Celsius - colder on the downstream side of the stone. After a number of measurements were made later on, Forchheimer found that the cooling at these points varied from 0.1°C to 0.4°C.

When moving naturally, water develops a series of vortices and eddies which brake its otherwise unimpeded forward movement and at the same time cool it. The steadiness of flow in naturally flowing river systems is closely associated with this vortical motion, which is due to the turbulence arising through the exceeding of the critical velocity relative to water temperature as mentioned previously. Such water will never accelerate continuously and rush headlong down a given gradient but, depending on its temperature and the type of temperature gradient in force, it will fairly quickly develop vortices and thereby slow its rate of forward flow, for the simple reason that these vortices represent the application of an automatic brake by creating a counter movement in an upstream direction, a phenomenon that will be explained in the following chapter.

### 11.3 Fishes from Eggs

Another interesting aspect about the trout in that the form of its body arises from the combination of three egg-shapes, two elongated in the form of seeds or grain and the other in the form of an egg (fig. 11.3), all of which can be precisely calculated with the hyperbolic mathematical system devised by Walter Schauberger. We are therefore concerned with a complex egg-form. As was demonstrated in the measuring jar, the egg-shape does seem to have a certain affinity for vortical motion and it is very possible that the resistance of this form to forward motion, or any kind of pressure, is much less than it would be in the case of a cylindrical or an elliptical system.

Here we need briefly to address Walter Schauberger's Pythagoras-Kepler System and its associated mathematics, which are devel-



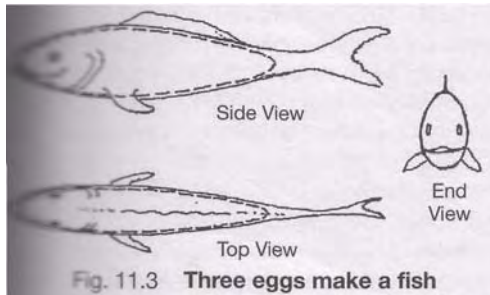


Fig. 11.3 Three eggs make a fish

The form of most fishes consists of three interacting egg-shapes. Because an egg-shape is of constantly changing, non-euclidean curvature, it is conducive to a reduction in friction and the generation of counter-thrusting vortices, which, if intensified sufficiently, result in accelerated forward movement.

oped from the Pythagorean concepts of harmonics derived from the Monochord, a single resonating string, and the planetary motion and harmonies of Johannes Kepler. Through the whole-numbered division of the length of its string, i.e. by 2, 3, 4, 5, etc., certain musically harmonic intervals can be obtained from the Monochord which, in their numerical

ratios of string length to pitch, can be interpreted as reciprocities.

These are the same reciprocities from which the rectangular hyperbola mentioned in previous chapters is constructed according to Walter Schauberger's simple equation  $1/n \times n = 1$ . Here  $1/n$  represents the radius or stringlength, and  $n$  the height above the baseline or the pitch of the vibrating string. If  $n=1$ , then  $1/1 \times 1 = 1$ , actually  $1^2$  since multiplying the radius by the height produces a square with sides of unit length (see fig. 11.4) whereas, musically speaking, stringlength 1 produces pitch 1. If  $n = 2$  on the other hand, then  $1/2(\text{radius}) \times 2$  (height) also equals 1, in this case a rectangle of  $1/2$ -unit width and 2-unit height and equal in area to the square mentioned above or, in terms of tone, string length  $1/2$  produces the first octave or double the original pitch. If  $n = 3$ , then  $1/3 \times 3$  also make a rectangle with the overall area of 1. In other words by multiplying both reciprocal terms together, the answer is always 1. What could be simpler mathematically!

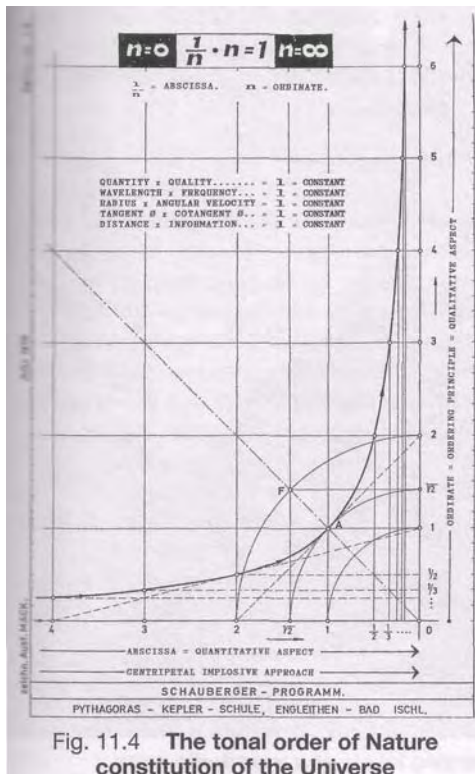


Fig. 11.4 The tonal order of Nature constitution of the Universe



Fig. 11.5 Hyperbolic cone





Fig. 11.6 Truncated cone

Applied to the concepts of Kepler, who was the first person to determine that the orbits of the planets were eccentric about the Sun, this same equation opens up a plethora of interesting insights in its three-dimensional form, namely as the hyperbolic cone shown in fig. 11.5. When he first put pen to paper, Kepler initially described the planetary orbits

as oval, i.e. egg-shaped (ovum=egg), but because he was unable to define them mathematically, he was eventually forced to adopt the simpler ellipse, which for most of the planetary orbits is a fairly close approximation. Whereas an elliptical orbit has two foci - the Sun occupying one, the other being empty - and a symmetry about both axes, an egg-orbit has but one focus - the unequivocal and only possible location for the Sun - and is symmetrical about the longitudinal axis only.

In comparison with the thoroughly symmetrical ellipse, the constantly changing curvature of the egg-orbit far better reflects the varying strength of the Sun's gravitational attraction as the planet moves around it. Moreover the egg's dissimilar curvature at opposite ends likewise far better reflects the varying speed and the resultant path followed by the planet as it accelerates towards the Sun, until it reaches its maximum orbital velocity at perihelion (position closest to the Sun; blunt end of the egg). Having passed this point the planet then decelerates, attaining its minimum velocity at aphelion (position furthest from the Sun; sharp end of the egg). Both terms, perihelion and aphelion, are of Kepler's coinage.

By taking a section through this solid a cone at a steeply inclined plane, the resultant flat

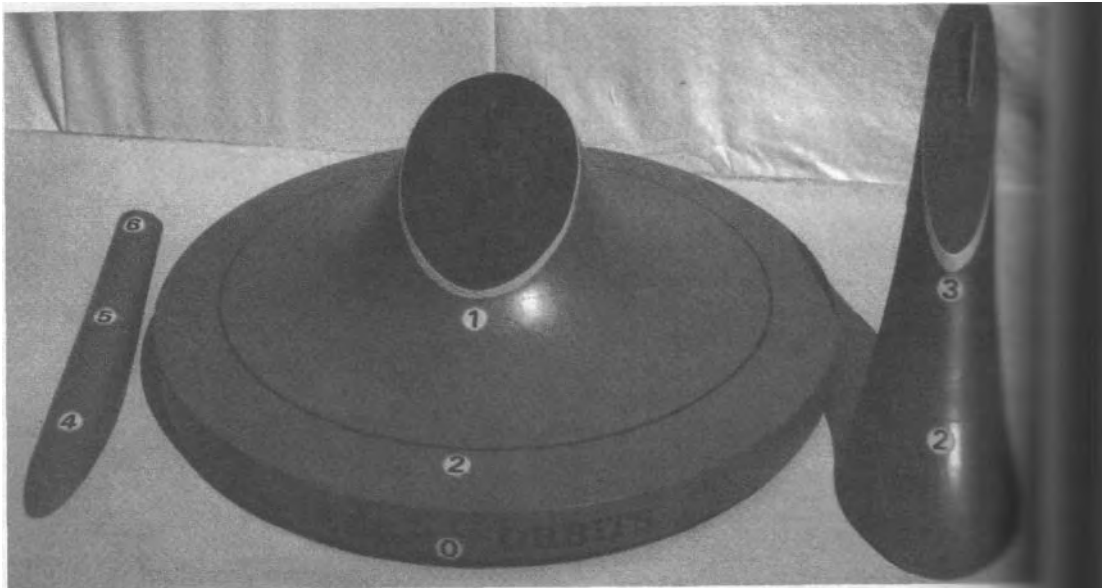
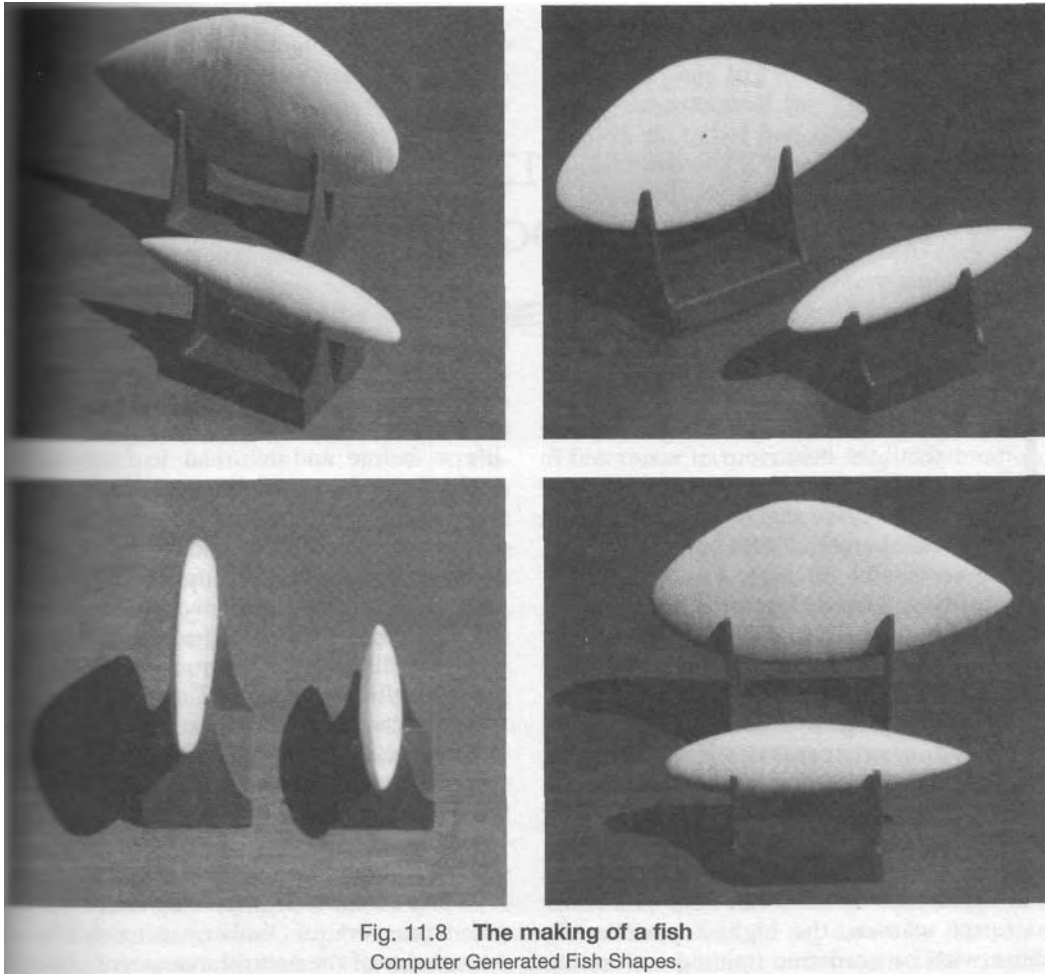


Fig. 11.7 Different shapes produced at varying levels of a hyperbolic cone



surface is grain-shaped as in fig. 11.6. If the section is tangential to the surface of the hyperbolic cone, then the resultant profile is sharply pointed at one end. On the other hand a section taken at a flatter angle produces the egg-shape shown in fig. 11.7. Even shallower angles will produce the planetary orbits that Kepler originally described with the term oval.

Using an appropriate computer program to combine data from two tangential sections of

different widths, but the same length, very fish-like forms can be created which are depicted in fig. 11.8. Here the four images of the two fishes produced by the author are shown. This well demonstrates the possibilities for the natural, non-Euclidean design of various apparatuses and devices afforded by the mathematics of the Pythagoras-Kepler System, with which any desired egg-shape, from extreme to mean, can be accurately calculated.

## 12

# THE LOG FLUME

In the previous chapters we began to learn more about the behaviour of water and in order to get even more into the swim of things, as it were, we shall now take a look at Viktor Schauburger's first major project, whose successful function was founded on his growing knowledge of water and its essential nature. This was the log-flume at Steyrling which began operations in the latter part of 1923.

Owing to his great inherited love of the forest and, as an apprentice forester, during the period from 1903 to 1914, Viktor Schauburger quickly acquired a great deal of knowledge about the forest, demonstrating an expertise far beyond those of his peers and rapidly rising from the rank of forester to forest warden, the highest position for those with no academic training in forestry. His progress as a forester was interrupted by conscription into the army to fight in the First World War, during which he was wounded. At the end of the war at the age of 33 he continued his career and, in a relatively short time, he developed a certain reputation which led to his employment in 1920 on a hunting and forest reserve owned by the German Prince Adolf zu Schaumburg-Lippe, whose family seat was at Buckeburg in Lower Saxony. As a forest warden Viktor's position was that of overseer of this very extensive domain at Brunnenthal in Steyrling, Upper Austria.

During the period immediately after the war the economic situation in the vanquished countries of Austria and Germany was particularly difficult. Despite this, some of the well-

to-do still believed that they could continue life as before and returned to frequent the tables at Monte Carlo. Prince Adolph and his new young wife, Princess Ellen (nee Bischoff-Korthaus), were no exception. The only problem was that she lost heavily, which presented the Prince with the recurring problem of trying to recoup what she had lost. The only means available to him to avoid bankruptcy was to sell the timber still untouched in the large tracts of virgin forest on their Brunnenthal estate, some of which were in very remote areas and access to them very difficult. How therefore could it be got out?

Before and during his early employ with Prince Adolph, Viktor Schauburger had been working on the design of a log-flume for the safe transport of timber, using his own knowledge of the natural movement of water and what had been passed down to him from his ancestors' long association with log-raftering. He was very concerned about the damage to the forest and streams associated with the normal system for recovery from otherwise inaccessible sites, for in those days the usual method of recovery was to fell the trees and throw the green logs into the nearest available stream at high-water in the hope that some of them would arrive at the sawmill in a usable condition. This system was extremely wasteful, much valuable timber never arrived and many logs were so splintered by the rough passage that they were useless for anything other than firewood (fig. 12.1).

On several occasions Viktor presented his designs to the Estate Administration, only to

have been haughtily rejected and ridiculed, because the way the flume was supposed to function was totally contrary to proven hydraulic theory and therefore would never work. After all, everyone with any good academic education knew that, in accordance with Archimedes' Principle, logs heavier than water - 'sinkers' - could not be transported in water but merely sank to the bottom.

Much sobered by the spectre of eventual bankruptcy and having heard rumour of Viktor Schauburger's unusual log-flume design the young Princess approached him to find out what savings could be achieved over the normal costs of timber transportation which amounted to 12 schillings per solid cubic metre, because the substantial losses mentioned above always had to be taken into account. Viktor answered that the costs could be reduced to 1 schilling/m<sup>3</sup>, including the amortisation of construction costs, because every log would arrive in good condition. The Princess jumped at the idea.

Despite the fact that Viktor had no academic qualifications, she offered him three times his normal salary if he agreed to build it and begged her husband to agree to its construction. He concurred, saying that, while it was very unconventional, if all went well it would solve their financial problems, due to the large returns anticipated. His agreement, however, was subject to two conditions: 1. the flume was to be built at Viktor's own expense and in the event of its non-function he was as also to pay for its demolition; 2. the flume had to deliver a minimum of 1,000m<sup>3</sup> of solid timber daily.

Viktor was delighted to take up the challenge and immediately began preparation for the construction of his first log-flume. It was not long before word was out, eventually attracting the attention of the Estate Administration and the Institute of Hydraulics at the University of Vienna, who were outraged that a young upstart forester should be awarded such a lucrative contract when they should have been called upon for their expertise. The whole thing was totally out of order and quite preposterous!

Instead of the usual rectangular or trapezoid concrete channel, Schauburger's log-flume was to be constructed of timber, the cross-section of the log-flume was egg-shaped, or rather half egg-shaped (figs. 12.2 & 12.3 - actually a later log-flume at Neuberg 1928), and it was to function in total contravention of the established principles of conventional hydraulics. When they were ready to start, the carpenters and labourers asked Viktor Schauburger where it was to be built. He told them to study the shape of the river and the valley and to follow these as closely as possible, because water never likes to move in a straight line, but always curves in its natural meandering motion and Nature's examples should always be followed. Therefore, as eventually built, it followed the contours of the valley (figs. 12.4, 12.5 & 12.6).

The day before it was due to be commissioned, Viktor decided to make a preliminary test of the flume's performance. An average-sized green beech log was ushered into the mouth of the flume and to his horror it stranded on the bottom after a few metres and would not budge. This was a catastrophe and something had to be done at once if the next day's opening was to be successful. Sending his workers away to give himself space to think, Viktor sat on a rock to ponder the situation. As he sat down he felt something scrabbling underneath his leather breeches and sprang up to find a very alive snake. Grabbing it quickly, he flung it into the holding basin, which supplied the flume with water and where the logs were to be assembled before being entrained into the flume. As he watched it swim to the other side, wondering how it was able to swim so fast, he suddenly became aware of its peculiar sinuous movement. Nature had again come to his aid.

The snake's movement was that of a spiral-space curve and like the shape of the Kudu horn (shown in fig. 12.7). Summoning his workers, he ordered the holding basin to be drained and the offending log removed. He then gave them instructions on how to attach thin wooden slats to the curved sides of the flume walls, which would act like the rifling

in gun-barrels and cause the water to rotate anti-clockwise at left hand bends and clockwise at right hand bends (fig. 12.8). Working all through the night with the promise of double wages, the work was finished by early next morning ready for commissioning at the Grand Opening.

This momentous event was to be attended by the Prince and Princess, the Chief Forestry Commissioner and a number of hydraulic specialists and experts. Nothing would have prevented the latter from attending since their dearest wish was to have the opportunity publicly to heap scorn on Schauburger and to witness his humiliation.

The first item on the agenda was the refilling of the 18 metre deep holding basin. It was of novel design and the inspecting experts considered its construction far too flimsy and the wall too thin to withstand the pressures of being filled. Viktor assured them that it was strong enough and, ignoring their strident protests for his safety, strode down to the middle of the wall directly opposite where the water would enter, at the same time calling back to the assembled company that, if he was wrong, then at least the world would be rid of another fool. If they had

thought him eccentric before, the experts were convinced that he had become mentally unhinged when his only response to their calls to return was to fire his shotgun into the air.

This was the prearranged signal to open the sluiceways at a higher weir. Having done this, he then stood looking down over the wall as a 6 metre high wall of muddy water full of flotsam and jetsam boiled and surged into the basin from the other side. In spite of the thrusting power of this roiling maelstrom, the wall held and the basin gradually filled.

From subsequent static calculation it was determined that it had been built 12 times more strongly than it need have been. The experts were dumbfounded and asked how he came to build it in this particular form. He answered very archly that he had obtained the shape from a common chicken's egg. What he had known, but the experts had not, was that when the first inflow of water entered the basin it would swirl across the bottom and around the sides (fig. 12.9). All the flows would then meet at the centre where he was standing and recoil in the opposite direction, thus creating an opposing

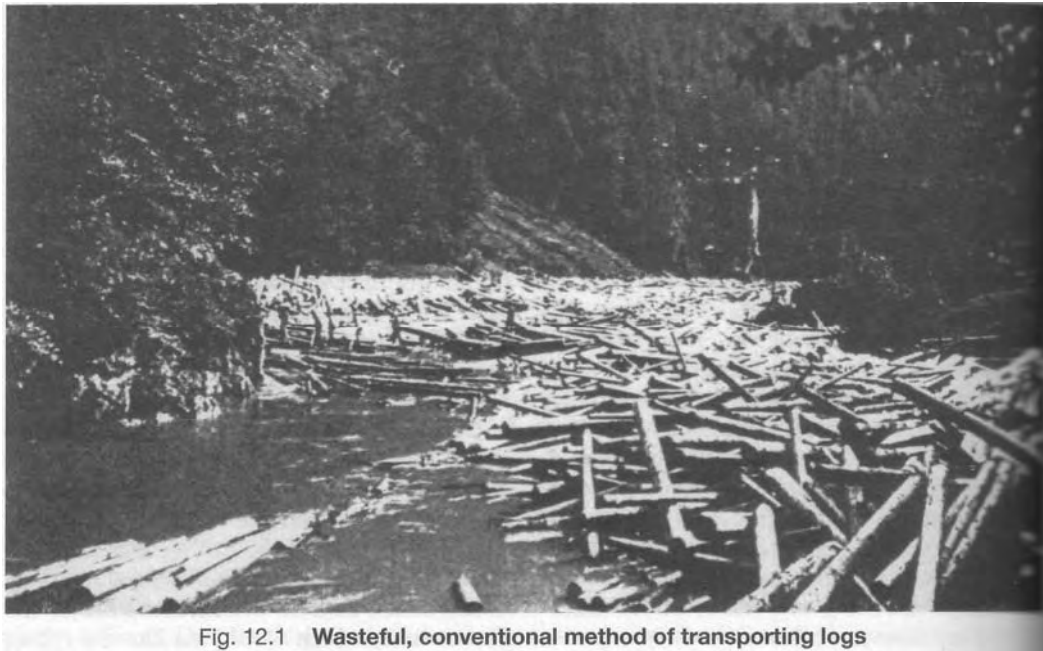


Fig. 12.1 Wasteful, conventional method of transporting logs



Fig. 12.2 Building of Neuberg log flume

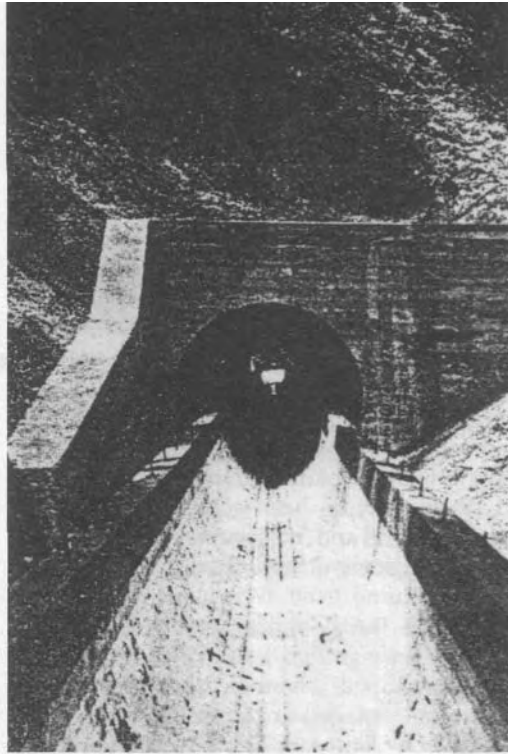


Fig. 12.3 Egg-shaped form of log flume



Fig. 12.4 Schauburger's log flume followed the contours of the valley



Fig. 12.5 & 6 The carefully engineered log flume

surge of water, which would counteract the momentum of the oncoming water and relieve the wall of destructive pressure.

All this having been achieved with much astonishment and no doubt a certain secret chagrin in some quarters, it was now time to test the flume itself. When everything was ready the flume sluice-gates were opened and the logs guided into the mouth of this half-egg-shaped channel. One very large beech log managed to get itself included with the first few logs and, half way into the flume it suddenly jammed and the water began to back up behind it. While all watched with bated breath, all at once with a loud gurgling sound it was sucked forwards and departed round the first bend. Many other logs followed, passing easily down the flume, being kept away from the sides at the bends by the longitudinal vortices induced by the rifling slats as shown in fig. 12.8.

Against all official expectations, on its very first day of operation it proved its worth and actually delivered 1,600 cubic metres of timber to the mill and Viktor Schauburger was paid. Delighted with the success, but unable to raise him to the position of 'Forstmeister' (Forest Superintendent) due to the vehement opposition of forestry officialdom, the Prince awarded Viktor the title of 'Wildmeister', or 'Master of the Wilderness' for his efforts. Later on, however, Viktor Schauburger had cause to rue the day he had built it, because the greed of the Prince and Princess was insatiable and, instead of the sustainable, economic extraction of timber he had foreseen, the whole area was clear-felled. After

expressing his disgust to the royal couple, he tendered his resignation and was summarily dismissed without pay.

The way in which the log flume operated however, is as follows: Water for the flume was initially collected in a deep holding basin fed by an adjacent stream. In this storage reservoir the water gradually stratified according to temperature and density, the colder water lying at the bottom (fig. 12.10a). Water of different temperatures was then drawn off from various levels in the reservoir, in particular low-temperature +4°C water, and introduced into the flume.

Now it is a known fact that waters of different temperatures do not mix immediately and, indeed, on many occasions, not for quite a long period. On the basis of the Archimedean principle of the specifically denser carrying the specifically lighter, through the generation of the longitudinal vortices mentioned earlier, the only place for the denser water was in the middle, the increasingly less specifically dense layers or skeins of water being at the outside. Because the temperature of the water at the central core of the longitudinal vortex was colder, its flow was faster and more laminar; an increase in water temperature, on the other hand, increases the incidence of turbulence.

Although no actual details of vortex-inducing elements exist for flumes constructed later, apart from the rifling slats, it is most probable that, when water was initially introduced into the flume from the holding basin, it was introduced into the system





Fig. 12.7 Kudu horn

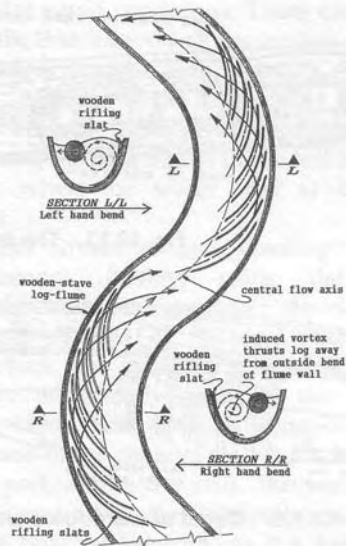


Fig. 12.8 Rifled bends in the log-flume

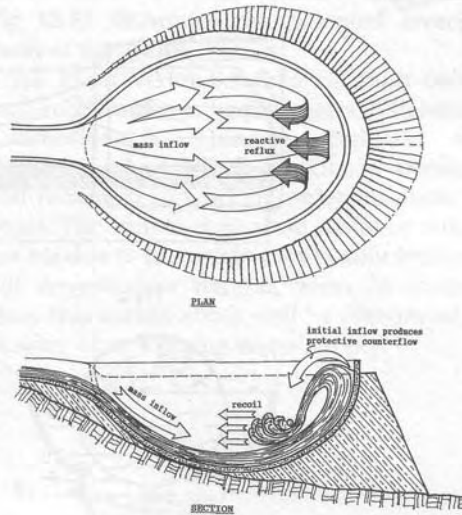


Fig. 12.9 Egg-shaped holding basin

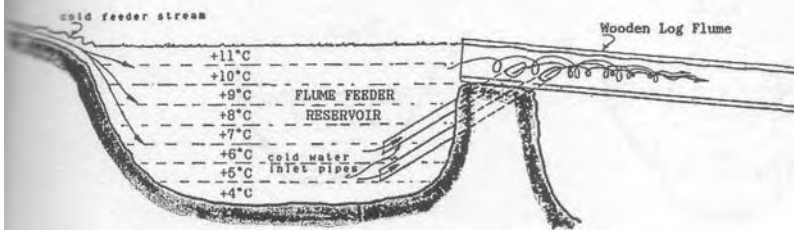


Fig. 12.10a Thermal stratification in holding basin

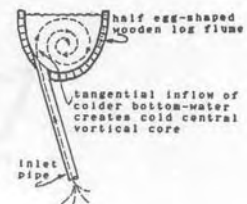


Fig. 12.10b Section thro' flume



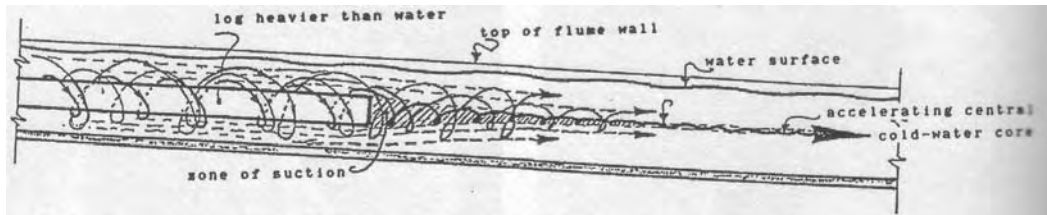


Fig. 12.11 The transport of logs heavier than water

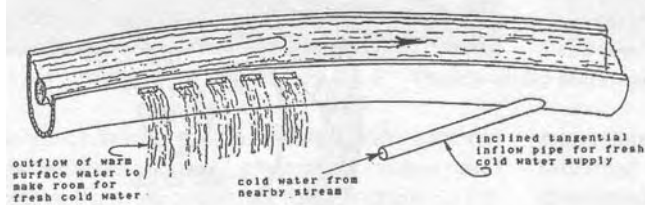


Fig. 12.12a Detail of warm/cold water exchange

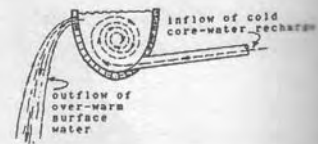


Fig. 12.12b Section thro' flume

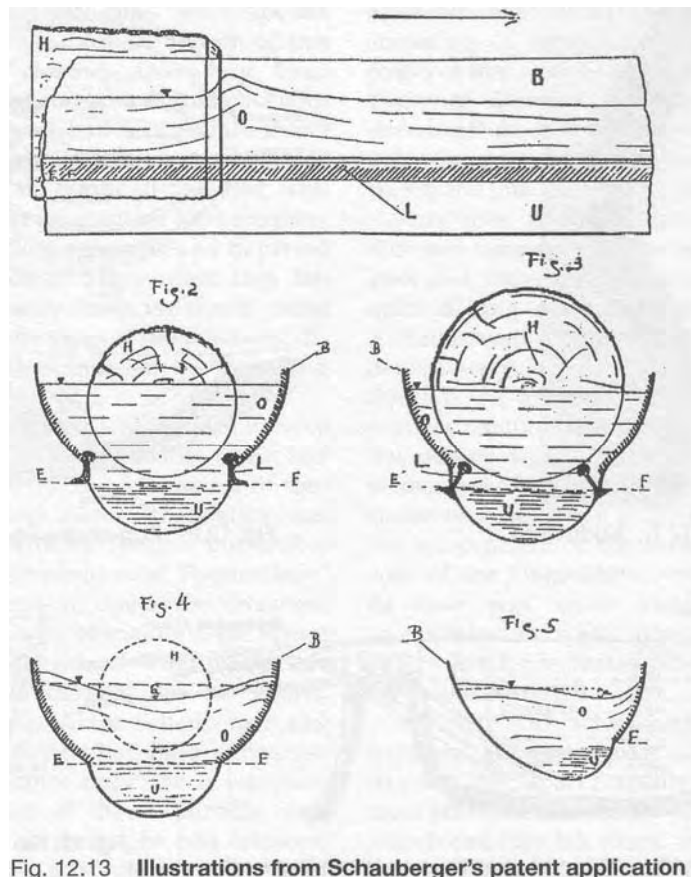


Fig. 12.13 Illustrations from Schauburger's patent application

tangentially (fig. 12.10b). As this central core of water moved away faster than the outer layers, it created an area of suction in front of the logs, particularly the 'sinkers', and drew these logs along with it (fig. 12.11). The logs themselves did not touch the sides and neither the timber nor the flume was ever damaged.

Periodically, in order to retain the water's energy, some water was drained off and replaced by fresh, colder 'energy-water' from affluent streams or adjacent springs. Viktor Schauburger knew that, once the water had been warmed to a certain degree, it lost its transporting ability, its carrying power and its energy to move the material. It therefore had to be re-energised with colder water. The warmer water was therefore skimmed off and colder water introduced, probably tangentially again, (as depicted in figs. 12.12a & 12b). This maintained the stratified vortical movement of the whole water-body.

The extent to which these flumes were operated at night is not recorded. However, in the early morning, when the overall temperature of the water was between +9°C and +10°Cp a block of wood took 29 minutes to cover the distance of 2km at the Neuberg flume at Steiermark. At midday, when the water temperature was between +13°C and +15°C the same block of wood took 40 minutes to travel the same distance under

otherwise equal conditions. There can be little doubt that Viktor was aware that the carrying capacity and flow velocity of water varied according to the time of day and season, because his forebears always rafted timber during the cold nights of the full Moon in winter, when the water was at its very densest.

Always inventive and wanting to test his theories further, using the same principle, Viktor Schauburger developed a log-flume capable of carrying even larger logs, which was provided with skid-rails to take the additional weight of the heavier timber. Here there was a difference in the roughness of the channel wall surfaces. In the upper part, above the rails, the walls were rougher and below them smoother, allowing a faster flow underneath, so if a log had a tendency to jam, it was sucked along by the faster flow of cold water underneath. Fig. 12.13 illustrates the patented arrangement of this flume<sup>1</sup>.

All in all Viktor Schauburger built seventeen such flumes in various parts of Bohemia, Czechoslovakia, Hungary, Bulgaria and Romania, all of which functioned perfectly and remained in working order for about 20 years. The timber they were made of would not rot due to the water's artificially induced, but nevertheless natural, form of motion. How this comes about will be elaborated in chapter 15 concerning water supply.

#### Note

1. Austrian Patent No.122144, 10 April 1931.

## THE DYNAMICS OF FLOW

### 23.1 Temperature Gradients during Flow

The temperature gradient in moving water plays a very decisive role both in its movement and in the configuration of its flow. This vital factor seems to have been completely lost to conventional river management, both historically and still to this day. Indeed the standard methods of regulating and rectifying the channel, taking

into account, as they do, just a mechanical point of view, only wreak damage to the waterway and attract increasing damage and maintenance costs in their wake.

Standard river engineering practice always attempts to regulate a river through the agency of the riverbank or other artificial flow-confining structures, never by reorganising the flow of the water's intrinsic energies, to which Viktor Schaubberger offers the following trenchant critique:



To regulate a waterway by means of the riverbank itself is verily to fight cause with effect. ...It cannot and should not be the task of the river engineer to correct Nature by violating her. Rather, in all watercourses requiring regulation his job should be to investigate Nature's processes as far as this is possible, and to emulate the examples that Nature provides in the way of healthy streams... Every violation, however, rebounds on the perpetrator. ...As water flows down a natural gradient, it does so according to a sublime inner law, whose power our hydraulic experts are quite unable to comprehend. ...The more the engineer endeavours to channel water, of whose spirit and where he is today still ignorant, by the shortest and straightest route to the sea, the more the flow of water weighs into the bends, the longer its path and the worse the water will become.<sup>1</sup>

In the light of this, unless the physical factor of temperature and the more immaterial magnitudes of the water's inherent energies are taken into consideration, no river engineering project will ever be wholly successful and in many cases will be downright harm-

ful, for it is precisely upon these very subtle differences in temperature that the orderly drainage of water depends. The variations in the temperature of the water-body as a whole and in its various parts are so subtle, lying perhaps within a range of  $0.1^{\circ}\text{C}$  to  $2.0^{\circ}\text{C}$ , that contemporary hydraulic engineers have never paid the slightest heed to them. Indeed, they generally regard the temperature of the water as irrelevant either to the form of the flow or to its energy.

These small, but crucial, differences in water temperature were therefore never included in any hydraulic calculation. Nothing appears to have changed, as I discovered in my brief discussion with Professor John F. Kennedy described in chapter 8. This omission has had disastrous consequences not only for those living next to rivers conventionally regulated, but also for the general climate and for the quality of the water itself.

Viktor Schauberger, on the other hand, considered these factors to be all-important and absolutely essential to all natural water resources management. He stated categori-

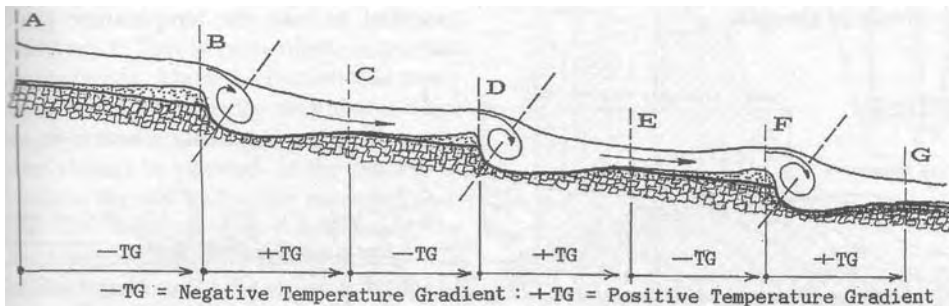


Fig. 13.1 Alternate deposition and scouring

1. Flow from A to B occurs under a negative temperature gradient by which the water is increasingly warmed and begins to deposit its suspended sediment.
  - 2.. Maximum deposition takes place at B, also the position of least carrying power.
  3. The accumulation of sediment here causes water to back up, resulting in an overfall with a transverse horizontally aligned vortex immediately downstream from B.
  4. Just after B, D or F these vortices not only cool the water, but also scour into the riverbed material, forming potholes.
  5. As a result of this cooling vortexial action the temperature gradient from B to C becomes positive and the sediment is transported and not deposited. Deposition gradually occurs as the negative temperature gradient beginning at C becomes more intense.
  6. This results in a similar situation at D to that occurring at B.
- Correction of this unwelcome phenomenon can be achieved by bringing about the extension of this alternation over longer distances through the incorporation of the appropriate internal flow control structures.

cally that no regulation could ever be successful unless they were taken into account, since it is dependent upon the water temperature and the temperature gradient predominantly active along its course whether a river will either remove, transport or deposit its sediment.

Under natural conditions when water descends a gradient, its flow is affected by a naturally occurring sequence of positive and negative temperature gradients because, in the course of flow, the water rhythmically heats up and cools down. How much it heats up, however, depends on the degree of friction with the riverbed, the external temperature and the extent to which the water is directly exposed to the Sun. It only requires a very minute change in temperature for water to pick up, transport or deposit its sediment and it is the type and duration of the temperature gradient prevailing that determines what happens and for how long. A negative temperature gradient causes the deposition of sediment, whereas a positive temperature gradient ensures its removal. This whole process can become very aggravated, however, if the temperature gradients alternate too suddenly or abruptly.

In fig. 13.1, for example, from A to B the temperature gradient is negative. From A to B the water gradually heats up and in the process is unable to retain the sediment in suspension and drops it progressively as the water becomes warmer. At B, the zone of maximum deposition, the accumulated material creates an overfall which, in turn, creates a horizontal barrel vortex immediately downstream. This vortex, however, cools the water and therefore from B to C the temperature gradient becomes positive. The sediment is once more picked up and transported. Upon reaching C, the effect of the positive temperature gradient gives way to its negative counterpart and the suspended matter is again dropped, reaching a maximum at D.

This pulsation or alternation can be likened to breathing; a positive temperature gradient representing the inward breath, the absorbing, material-collecting movement, the negative temperature gradient representing the outward breath, where the energetically transformed matter is exhaled from the system and deposited.

So it becomes clear that, in order to regulate a river naturally, and satisfactorily, it is essential to take the temperature gradients

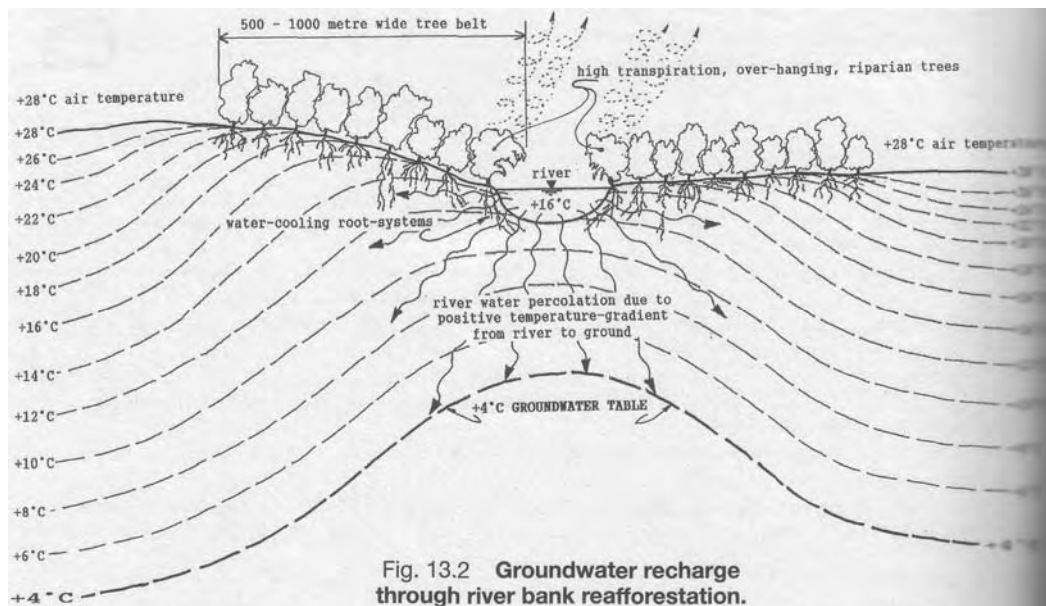


Fig. 13.2 Groundwater recharge through river bank reforestation.

and their alternating sequence into consideration. In order to reduce the danger of flooding to a minimum it is therefore clear that the longer the duration of a positive temperature gradient can be preserved, the less likely a river is to flood, since only minor sediment deposition will occur.

The duration of the positive temperature gradient can be extended or it can be recreated where necessary in four principal ways:

1. By shading the river through the replanting of trees.
2. By the construction of appropriately designed dams in which the temperature of the discharge can be suited to the prevailing air temperatures and the water temperatures of the downstream flow regime.
3. By installing flow-deflecting guides which direct the flow of water at the bends towards the centre of the river and simultaneously cause the creation of cooling longitudinal vortices.
4. By the implanting of 'energy-bodies' in the river bed, which re-energise the water by inducing the formation of longitudinal vortices.

On point no. 1: This is particularly important at the riverbends, where the friction and therefore the warming tendencies are greatest. Here species of timber which have a high evaporation rate should be planted. In the process of evaporation the sap in the tree is cooled and, because the roots develop underneath the river bed this cooling effect is also extended to the riverbed and thus to the water as well. The tree therefore acts like a refrigerator.

The key factors here in terms of land and water resources management are, firstly, never remove forest from the banks of a river. Indeed a belt of trees of at least 500 to 1000 metres wide should be maintained along all rivers banks for the health of the river. Rivers flowing through cleared, barren countryside should be reforested (as shown in fig. 13.2) in order to re-establish healthy flow conditions, restore the nutrient supply and recharge the ground water table in its vicinity. On point no. 2: As presently constructed, the majority of dams and most water storage

facilities either release cold bed-water from the bottom-sluices or warm surface water over the top of the dam wall by means of the spillway. This is done without considering the temperature of the water released or its possible effect on the downstream flow regime and on many occasions has disastrous consequences. The discharge of warm water, for example, into a stretch of river where the temperature gradient is only slightly positive, will effectively remove it altogether, resulting in the automatic and almost simultaneous deposition of silt and sediment. The result will be flooding.

The discharge of cold bed-water only, on the other hand, may over-cool the lower reaches, causing excessive scouring and the transport of very heavy sediment loads, which the lower flow regime is unable to handle due to a number of factors. These

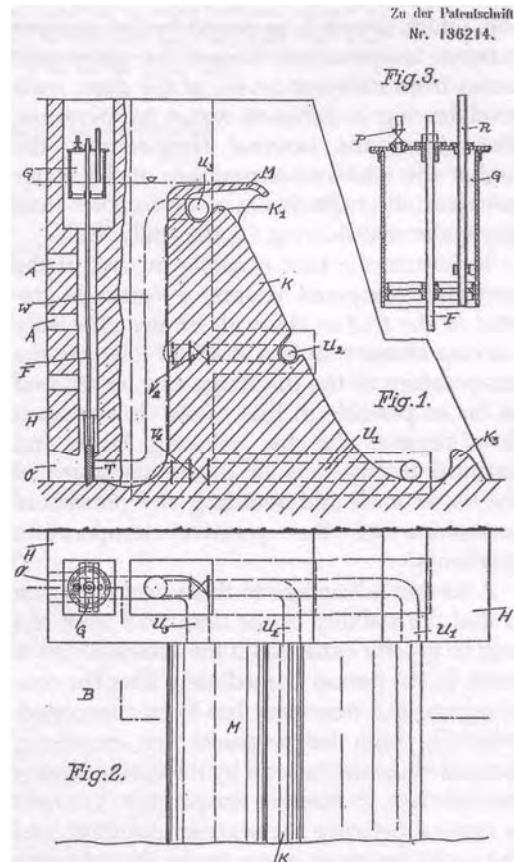


Fig. 13.3 Patent application for a dam design

may involve the slope of the bed-gradient and thereby the speed of flow, the width of the channel - wide, shallow channels dropping sediment more quickly, the temperature gradients operative lower down, etc. Each type of discharge eventually produces the same results - silting up followed by flooding.

The control of the downstream flow for the purposes of extending the period of a positive temperature gradient can be achieved through the construction of appropriately designed dams. Fig. 13.3 depicts a patented design for a dam by Viktor Schauburger, which shows various outlet-sluices at different heights on the dam-wall. The aim of this arrangement is to remove large and therefore disruptive temperature differences and to bring the external air temperature and the temperature of the riverwater into a closer approximation. Controlled by a floating caisson, which in turn is operated by the ambient external temperature, these sluice-gates take water from different levels of the dam, each level having a different water temperature. The higher the external temperature, the higher the relative temperature of the water released, although this is always cooler than any water overflowing via the spillway.

To ensure the best possible mixing of the variously tempered waters, a vortex is created at the foot of the wall by the upwardly curving element shown at K3. In this way the temperature of the discharge can be attuned as far as possible to that of the downstream flow regime, thereby reducing large and harmful fluctuations in the temperature of the water itself and avoiding any premature inversions of the positive temperature gradients.

A further advantage to this novel approach is that the stability of the dam wall itself can also be greatly enhanced if the above design is used. In the period immediately after the construction of a new dam has been completed, relatively high temperatures are frequently generated inside the wall by the curing heat of the concrete. A positive temperature gradient is created between the warmer structure and the cooler reservoir water, under the influence of which the water present in the wall moves

towards the water in the reservoir. As it moves through the wall it dissolves and dislodges particles of the structure. In the process, cavities in the material are formed, thereby weakening the wall. When rain falls on the outer surface of the wall, it too is drawn in by the positive temperature gradient. As juvenile water it attacks the substances of the wall, enlarging the cavities as it transports further material towards the reservoir. Now fissured, the dam wall is open to frost attack in winter and, little by little, the wall is rendered increasingly unstable.

With this design, however, measures can be taken to remove this danger completely. By over-trickling the exterior of the wall with small quantities of cold,  $+4^{\circ}\text{C}$  bed-water, thereby cooling it and protecting it from the effects of external temperature (e.g. the Sun), a positive temperature gradient can be established from the reservoir in the direction of the outer surface of the wall. Under its influence the suspended matter in the reservoir water is drawn into the wall through all the small fissures and capillaries in the wall-structure. It should be borne in mind that by excluding light, heat and air the deposition of salts and other elements increases as the temperature decreases towards  $+4^{\circ}\text{C}$ . In this way the cavities are gradually filled until the dam wall is totally sealed. Ultimately the wall will even resist the penetration of water, becomes impervious and as a structure is thoroughly consolidated.

Viktor Schauburger built fourteen of these dams. Their efficacy was confirmed in a paper given by Professor Forchheimer on April 15th, 1930, in which he stated:

Finally it may be said that Herr Schauburger has already built a number of dams which have proved successful. Some of his structures I myself have inspected, and I can affirm that these new concepts of Schauburger's have completely fulfilled the purpose for which they were designed.<sup>2</sup>

On point no. 3: Being aware of the harmful effects of heat and the dissipation of a river's inherent energies through faulty regulation, on the 31st of January 1927 Viktor Schauburger applied for a patent for a flow-deflecting guide-vane with which to re-establish a

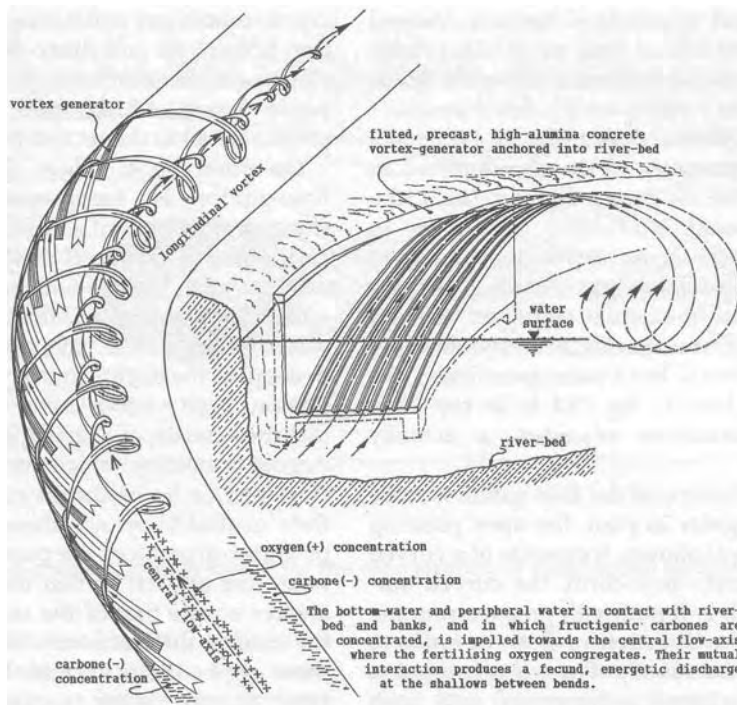


Fig. 13.4 Longitudinal vortex-generator

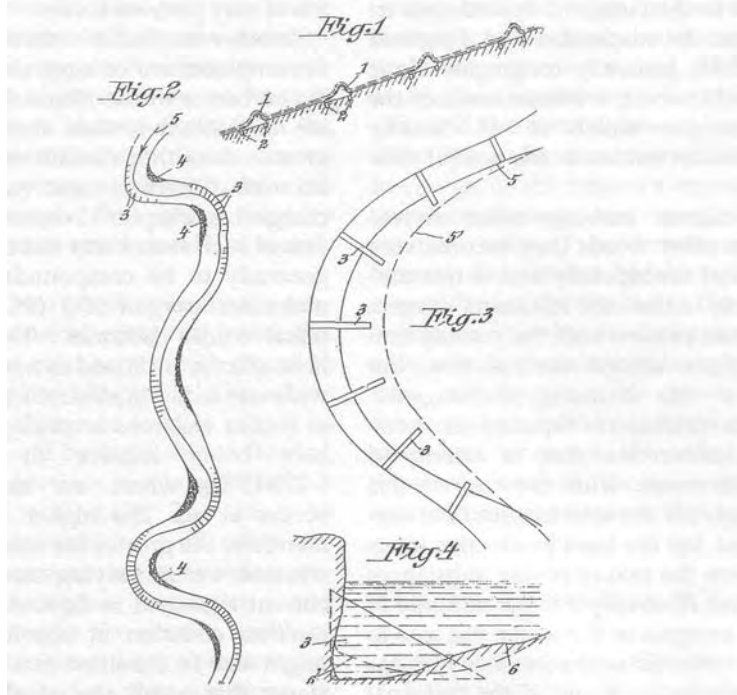


Fig. 13.5 Austrian patent no. 113487



river's natural longitudinal vortices. Viewed along the direction of flow, these induce anti-clockwise rotating vortices at left hand bends and clockwise vortices at right hand bends.

The flow-guide shown in fig. 13.4 does not correspond precisely to the one depicted as figs. 1 and 4 on the patent diagram (fig. 13.5 - Austrian Patent No.113487) which, as in other instances, seems almost deliberately to have misrepresented Viktor's ideas. In this particular case the actual text is at variance with the diagram. Having been shown other diagrams drawn by Viktor personally, the one shown here in fig. 13.4 is in my view more representative of what is actually entailed.

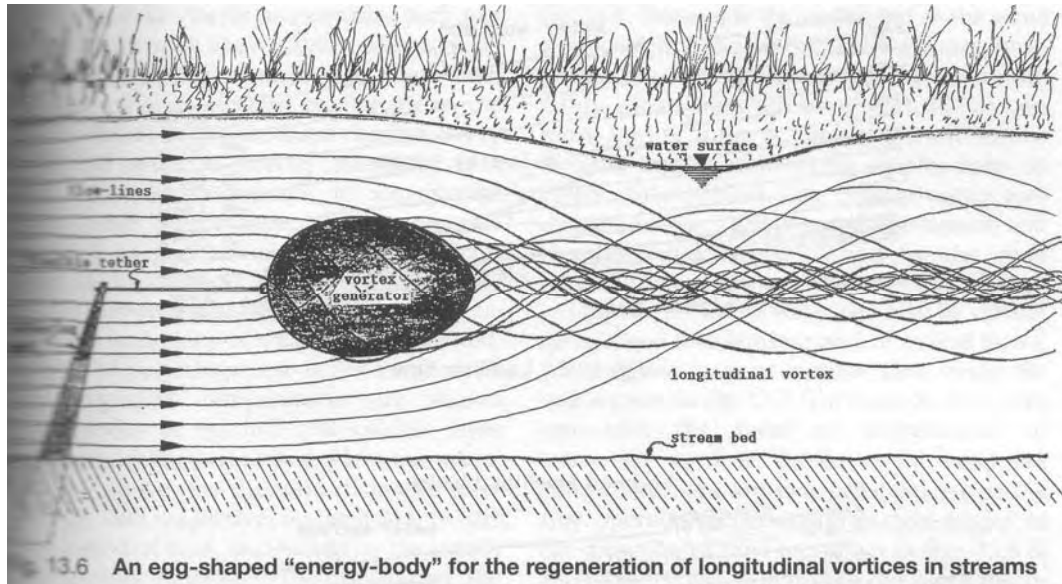
The actual shape of the flow-guide is more or less triangular in plan, the apex pointing downstream as shown. It consists of a curved precast concrete flow-form, the curved surface of which is fluted with grooves running parallel to the direction of flow in order to prevent any lateral slip. The wider, upstream end of the triangle is horizontal and flush with the riverbed, so as to scoop up the onflowing water and curl it over centripetally into a vortex in the centre of the channel. At the same time the suspended and dissolved carbonates, which generally congregate along the banks and the bed, are lifted towards the dissolved oxygen which in all healthy streams normally resides in the central flow axis.

These fructigenic carbonates react to centripetence. In other words they become very active if moved centripetally and in this condition are able to bind the fertilising oxygen, which becomes passive with the cooling centripetence of the central vortical flow, but highly active with warming centrifugence. Whatever the condition of the channel, therefore, and whatever the state of activity of these two elements, with the use of this device not only are the vital longitudinal vortices recreated, but the most productive interaction between the two opposing substances is also assured. Here they interact not only to increase the energies in the water, but also to augment its carbonic acid content which, as discussed previously, is one of the principal constituents of good water. Moreover they

create conditions conducive to the propagation of bacteria and micro-organisms beneficial to the environment through which the water passes. All this will be discussed in greater detail in the section on water supply.

On point no. 4: Where use of the above flow-guides is inappropriate - in the straighter stretches of a channel for instance - and where the removal of sediment is desirable, so-called 'energy-bodies' can be installed which have a similar effect on the flow of water. Though these have not been described in detail in the documents in the author's possession, from various hints it would appear that they consist of egg-shaped elements with neutral buoyancy, which are anchored to the river bed or its banks. In order to maintain their neutral buoyancy these flow-energisers or vortex-generators are provided with small holes fore and aft so that their inner density always equals that of the outer water. As in the case of the stationary trout, the effect of these egg-bodies is to create longitudinal vortices as the water swirls around them (fig. 13.6). The actual shape itself is naturally open to experiment and more grain-like forms may perform better.

Another method of introducing vortices is the emplacement of large stones or boulders in the centre of the channel. If these stones are metalliferous, then their effect is even greater, since they contain metals and minerals with different atomic valencies (+ and - charges). In chapter 11 the chemical composition of such stones was elaborated and found generally to be compounds of silicon (Si), molecular oxygen ( $O_2$ ) ( $SiO_2$  = silica) and metal oxides (silicates). The base element here, silicon, is classed as a semiconductor. In wide use today in electronics, silicon releases or retains electrons according to temperature here being relative to absolute zero ( $-273.15^\circ C$ ) where no electron emission occurs at all. The higher the temperature therefore, the greater the number of electrons released, i.e. in varying measure an electric current is caused to flow. At a state of zero electron emission at absolute zero, silicon might also be classified as a dielectric, a substance that resists the transfer of an electric charge (see chapter 6, 6.1). From a dielectric



13.6 An egg-shaped "energy-body" for the regeneration of longitudinal vortices in streams

viewpoint, which takes both sides of a given phenomenon into account, its semiconductor function at higher temperatures could be equally interpreted as semi-dielectric. Through combination with other substances, silicon would thus give rise to the creation of materials with diverse dielectric properties and if two such substances with different degrees of permittivity are brought into contact, then a current flows from the lower to the higher. In view of pure water's high dissolving power and high dielectric value of 81, a current flow inaugurated by the presence of water could thus be of significant magnitude.

Here then are two possibilities for the generation and increase of energy in water. But as has been mentioned earlier with regard to falling rain droplets (chapter 6, 6.3), whenever an electric charge or field is caused to rotate, which would be inevitable in flowing water, then a magnetic or biomagnetic field is also generated reciprocally. The effect of these vitalising interactions with other elements, further increases the life-evolving production of fructigens, dynagens and qualigens and thereby the greater health of the water. In other cases these elements may also act as catalysts for other functions. In addition emplacement of such stones would

produce a similar effect to the one investigated by Professor Forchheimer on the excursion with Viktor Schauberger discussed in the previous chapter. On one occasion Viktor Schauberger admits to making use of 'energy-bodies', when he secretly installed them in a sediment-choked stream during the night. By morning it had all been carried away, the channel bed deepened considerably and the natural flow of water restored. All of this to the amazement of the engineers in charge of the stream's regulation, whose gross mismanagement coupled with the equally serious misdemeanours of the forestry department had brought about the constriction of the channel in the first place.

Before addressing the depletive and degenerative effects of modern river-engineering practices and hydro-electric power generation, however, we shall first examine the natural movement of water. As will have become apparent from all previous chapters, such movement is sinuous, convoluting and vortical.

## 13.2 The Formation of Vortices

A part from the general function of temperature gradients described above, in order to explain the various aspects of temperature-

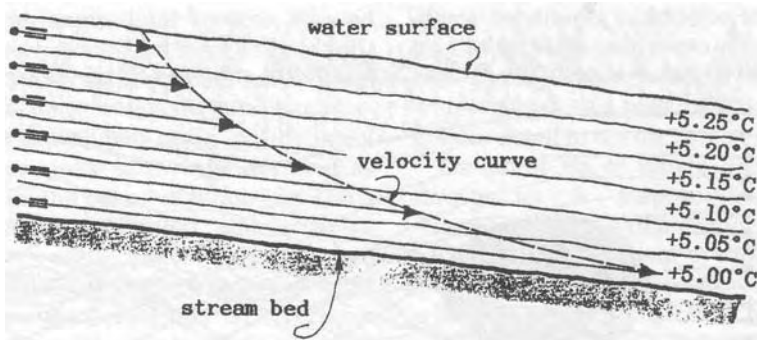


Fig. 13.7 Laminar flow

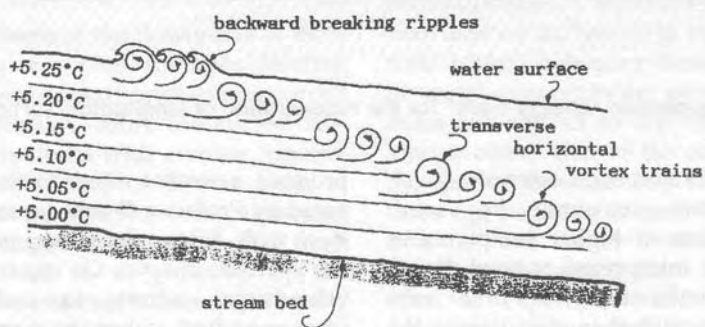


Fig. 13.8 Longitudinal turbulence vortices

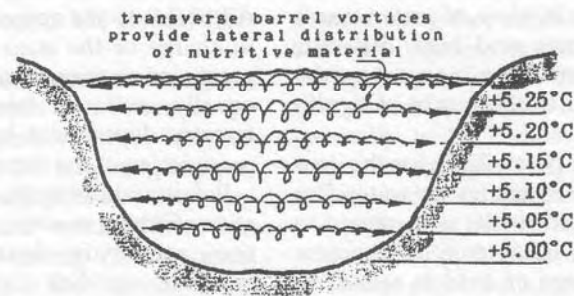


Fig. 13.9 Transverse vortices

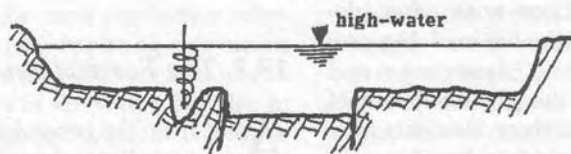


Fig. 13.10

related flow as clearly as possible, each one will be dealt with individually, although by and large in any river or stream all of them are interactive in diverse combinations. As already stated in the previous chapter, every particle of water is directly connected to a particular velocity relative to its specific weight and temperature, a phenomenon described in great detail by Viktor Schau-berger in his 1930-31 treatise "Temperature and the Movement of Water"<sup>3</sup>.

To give some idea of what is here involved, a series of superimposed water-strata with their respective temperatures are shown schematically in fig. 13.7, the coldest layer flowing over the stream bed. Here the velocity curve shows the different distances travelled by the respective water-strata in the same period of time, as denoted by the length of the arrows. Relative to the upper layer, the lowest can be seen to flow far more rapidly due to its greater density and coolness. At the interface between these various layers, even though the temperature differences may be minimal, there is nevertheless a difference in their relative, temperature-related velocities, the lower layer sliding forwards slightly faster than its immediate upper neighbour. This slip creates a sort of vacuity at the 'end', as it were, of the higher-lying layer, into which the lower layer rises. In the process vortices are formed at right-angles to the current, which rotate on a horizontal plane from the bottom upwards as shown in

fig. 13.8. These mix the water, but at the same time cool it, because the water temperatures within the centre of these vortices are identifiably cooler than those without, the uppermost vortex train manifesting itself as the familiar backward-breaking ripples seen on rivers at the surface. This type of vortex also distributes the lighter weight sediment and the nutrient material carried by the river from the centre towards the sides (fig. 13.9).

The movement of water can also be further categorised into laminar and turbulent flows, the simplest form of laminar flow being the one shown in fig. 13.7. Turbulence, however, can take the form of longitudinal or transverse vortices. As far as the latter are concerned there are two principal types; the first operates horizontally at right-angles to the direction of flow as shown in figs. 13.8 & 13.9; the second, potentially the more harmful, also acts at right-angles to the current, but on a vertical plane and, if too powerful, will gouge deep pot-holes or trenches in the river bed, seriously dislocating the natural flow (fig. 13.10).

Longitudinal vortices, as the name suggests, are aligned parallel to the flow-axis of the channel. While these may constitute turbulence according to the meaning of the word, longitudinal vortices have an extremely beneficial function, as will be shown later, and represent the structuring of those energies required to dislodge and transport sediment, and without which all

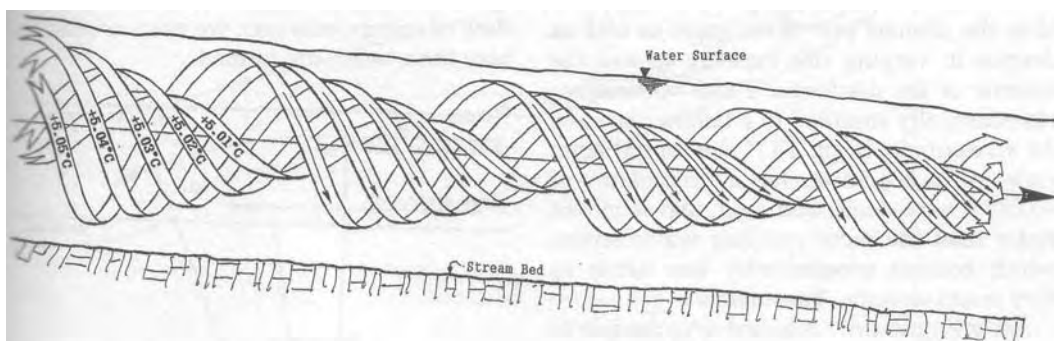


Fig. 13.11 The Longitudinal Vortex

A longitudinal vortex showing laminar flow about the central axis. The coldest water-filaments are always closest to the central axis of flow. Thermal stratification occurs even with minimal differences in water temperature. The central core water is subjected to the least turbulence and accelerates ahead, drawing the rest of the water-body in its wake.

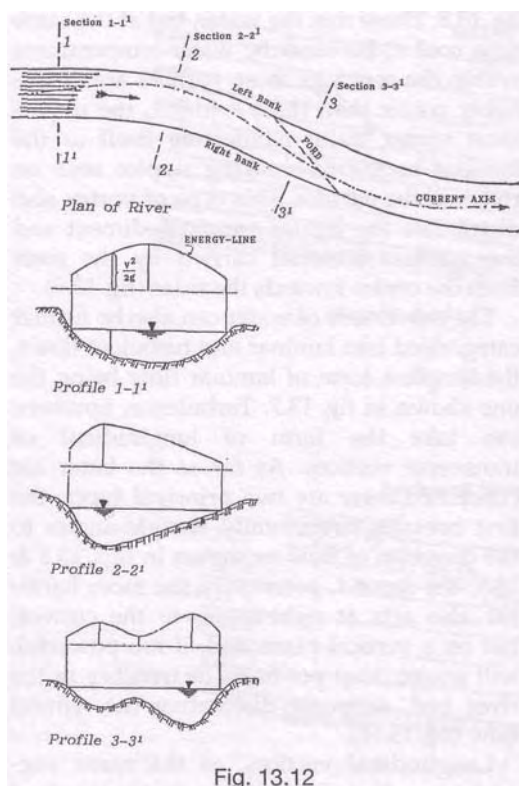


Fig. 13.12

channels will eventually silt up. At the same time they are those vessels which create and enhance the counterflow of levitational energy, the immaterial psyche of a waterway.

Although there are not many left, a naturally flowing river, undisturbed by modern river engineering, only rarely if ever overflows its banks. In their cool, faster flow down the flow-axis, longitudinal vortices clear the channel bed of sediment as well as deepen it, varying this capacity to suit the volume of the discharge. These vortices are also thermally stratified in a laminar fashion. As an example, in fig. 13.11 the central core-water of such a vortex has a temperature of  $+5.01^{\circ}\text{C}$ , very dense and cold, and it moves faster than the more outlying water layers, which become progressively less dense as they warm towards the outside.

According to the Archimedean principle of the denser carrying the lighter, here the densest core-water carries the specifically lighter water, because in this inwinding, centripetal, vortical movement the densest water has to

flow down the very centre. It was this phenomenon which was responsible for the transport of the 'sinkers' mentioned in chapter 12.

Apart from cooling the river water, the other principal function of both transverse and longitudinal vortices in naturally flowing rivers and streams is to apply the automatic brake to the descending water. Without this naturally applied brake, the heavy masses of water would over-accelerate, rupture the river banks and cause immense havoc. It is this aspect that forms the nub of Viktor Schauberger's initial treatise, "Turbulence"<sup>4</sup>, deposited under seal by Professor Exner at the Austrian Academy of Science in 1930.

### 13.3 The Formation of Bends

**A**t the reflection of a primary energy path, the serpentine, meandering pattern of bends in a river is a manifestation of the physical secondary effect. Apart from large, immovable obstacles such as mountains and cliff faces for example, the course of a river or stream always follows the path in which the energies in a given situation like to move. In some instances it is difficult to say whether the topographical features of a landscape produced the form of the river or whether the river gave rise to the landscape through which it flows (viz. the Grand Canyon of Colorado), so intimately connected are the two. Since rivers are the mirrors of an unseen flow of energy, however, we need to examine how these bends are formed.

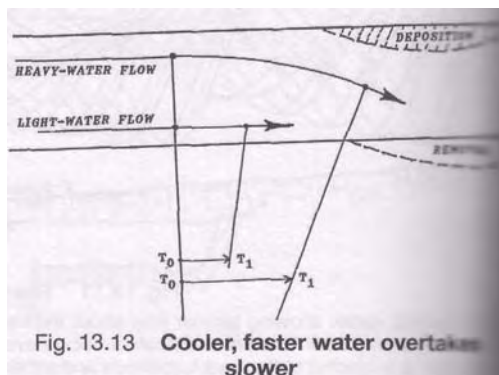


Fig. 13.13 Cooler, faster water overtakes slower

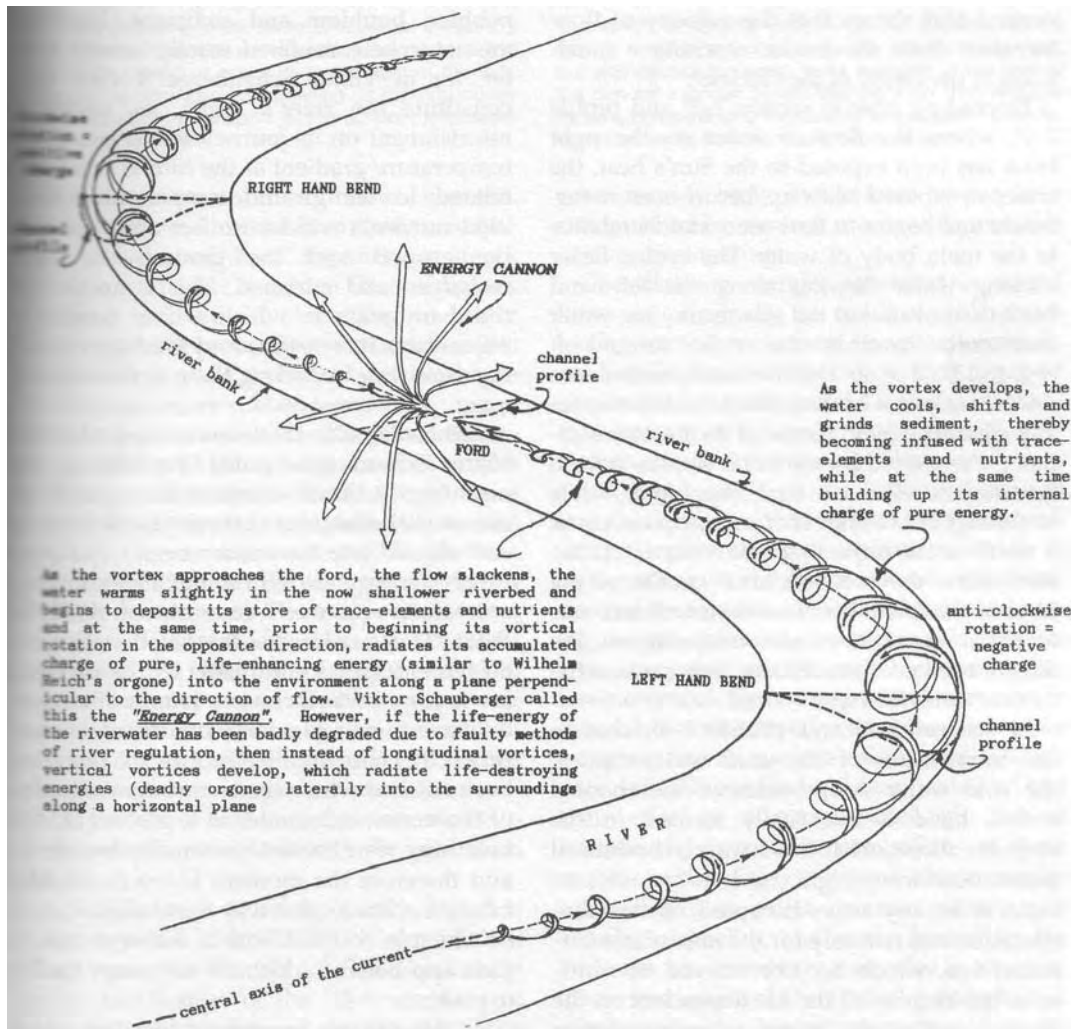


Fig. 13.14 The "Energy Cannon" of Viktor Schauberger

The processes in the flow of water leading to the formation of bends is shown in fig. 13.12 in plan and section. Assuming that the river is initially shaded on both banks, the profile of the channel at section 1-1<sup>1</sup> is symmetrical, as shown in the corresponding profile 1-1<sup>1</sup>. The curved line at the top of the diagram reflects the velocity of flow at each vertical and shows that the velocity of flow increases from the banks, reaching a maximum at the centre of the channel.

Proceeding now to section 2-2<sup>1</sup> and profile 2-2<sup>1</sup>, where the flow of water on the right bank has been exposed to the Sun's heat, the water so exposed heats up, becomes more turbulent and begins to flow more slowly relative to the main body of water. The cooler, faster moving water flowing along the left-hand bank then overtakes the slower moving water and curls towards the right around it (fig. 13.13), due to the increasing turbulence and deceleration of the warmer water, eventually creating a bend. Some of the heavier sediment transported by the faster flow is thrown towards the left due to centrifugal force, while to the right the removal of sediment occurs as a result of the impacting colder water. At the same time the cross-sectional profile of the river at this point becomes asymmetrical, due to the unequal flows and temperatures, the deeper section of the channel being where the coldest water flows.

In section 3-3<sup>1</sup> and profile 3-3<sup>1</sup>, due to the momentum of the cold water-masses, the cold water swaps sides of the channel and a bend is eventually formed in the opposite direction. If this natural, rhythmical alternation from right to left and left to right is in any way disrupted, it has dire consequences not only for the immediate surroundings, which become starved of nutrients, but also for all the life dependent on the river downstream. Indeed when regulating the course of a river naturally it is very important to ensure that a left hand bend, for example, does not occur where a right hand bend would complete this natural alternation.

The location of this current cross-over is where the river is shallowest and where it can most easily be forded. Since the flow-

velocity tends to decelerate here, fords are also the major deposition zones for the river's suspended nutrients and minerals and where the river can transfer these to the environment. The bends on the other hand are where the rocks and stones are ground up and their pulverised substances transported in the vortical flow for later deposition. These pebbles, boulders and sediment, however, are not to be considered merely as inert matter, for in Viktor Schaubberger's view they constitute the river's bread, its source of nourishment on its journey to the sea. If the temperature gradient at the ford is positively related to the ground temperatures these vital nutrients will be further absorbed into the ground and the groundwater table recharged and enriched. This is another of the many ways in which a river constantly regenerates its energies and vitality, while at the same time imparting them to the environment.

The ford is also the focus or target of what Viktor Schaubberger called the 'energy-cannon' (fig. 13.14). It is where the upbuilding immaterial energies or ethericities of the river are released into the environment which, as a form of energy are akin to the life-endowing, animalistic 'orgone' energies of Wilhelm Reich. They are freed at this location, because all the energies accumulated in the previous inwinding, anti-clockwise, longitudinal vortex have to be released before the movement turns clockwise. In other words, the point has been reached where the energy concentration of the vortex culminates in a process akin to breathing. One cannot continually breathe in and therefore the moment is reached where inhalation has to give way to exhalation, each of which is coupled with a different energy form and both of which are necessary for life to continue.

As these stones are ground together, which can only occur if the water is sufficiently cold, dense and dynamic, small particles of the minerals they contain are released into the water and partially or wholly dissolved, replacing those previously lost through transfer to the surroundings. Not only are these trace elements and minerals released, but pure ionising energy as well through the generation of

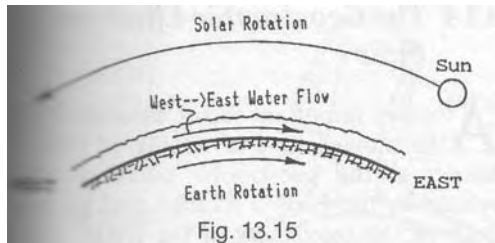


Fig. 13.15

The effect of flowing in the same direction as the Earth's rotation accelerates the water's relative movement and reduces the period of exposure to the heat of the Sun. The water remains cooler, increasing its carrying power and its capacity to transport nutrients. Both riverbanks normally remain fertile.

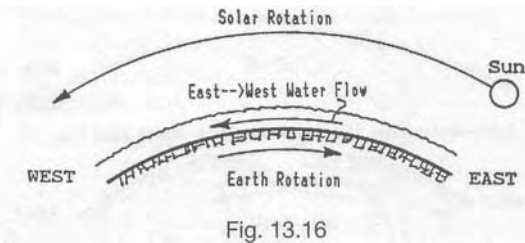


Fig. 13.16

The effect of flowing counter to the direction of the Earth's rotation not only slows the water's movement, but also causes the water to be exposed to the heat of the Sun for a longer period, heating it up. This reduces its carrying power and its capacity to transport nutrients. Both riverbanks can eventually become barren.

the triboluminescence mentioned in chapter 8. When two crystalline stones of similar composition are rubbed hard together or struck against one another, a golden flash of light is produced inside them. According to Viktor Schauberger the same effect occurs when two pieces of high-grade timbers of similar chemical composition are rubbed together. In my experiments with this phenomenon, the generation of the sparks does not appear to cause an electrical disturbance, since a radio placed immediately adjacent to the sparking stones does not crackle in time with the production of the spark. In fact it does not crackle at all. There appears to be no interference whatsoever. We are therefore here concerned with some form of oxidation, a combustion process. That this sparking can also occur under water has never been imagined or investigated scientifically. It does take place under water, however, and is therefore a process of cold oxidation, an oxidation not necessarily associated with the generation of heat.

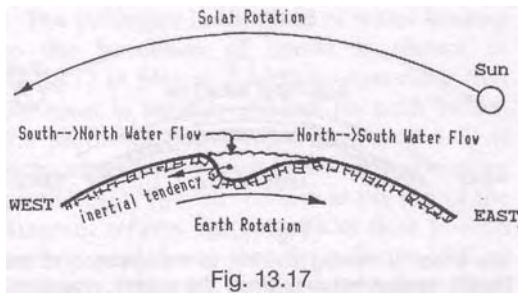
A further point of interest in this regard is the origin of the fabled 'Gold of the Nibelungs', the 'Rhinegold' that supposedly lay on the bottom of the Rhine in days of yore and which gleamed during the hours of darkness. This legend is also to be ascribed to the phenomenon of triboluminescence. About 200-250 years ago, the water of the Rhine was doubtless pure, clear and translucent enough for people to observe what appeared to be the flashing of gold on the river-bed. Today, however, along with many other rivers, the Rhine is a thick, turbid, grey-

green muddy brew, its life-force having been extinguished by modern mechanistic methods of river engineering.

The vitalising energies generated in natural flows are principally the result of cooling coalescing vortical movement along the longitudinal axis of flow, which brings the dispersed suspensions of finely ground material into intimate contact in the densely packed cold core-water, a liquid intermixture Viktor referred to as an 'emulsion'. Both the extreme densation and the rapid rate of rotation at the vortex core induce higher states of ionisation, which in turn enable new combinations and recombinations of the various elements, thereby enhancing the generation of electromagnetic energies (viz. function of metalliferous rocks and triboluminescence). Since longitudinal vortices are associated with natural self-cooling flows, the energies they release are cold-sourced through processes Viktor called 'cold fermentation' and their effect is therefore beneficial. This is because the immaterial emanations of these emulsions containing oxygen - also a component of silicates, which becomes passive with centripetal cooling and easily bound by the carbonates, are essentially formative in function. These environmentally vitalising energies are discharged on a plane perpendicular to the axis of the vortex as shown in fig. 13.14 and can be likened in character to the bio-magnetic discharge above the water-jet described in chapter 6, fig. 7 and fig. 6.11.

With transverse vortices, however, and vertically aligned transverse vortices in particular (fig. 13.10) which form because the water has become over-warmed by over-exposure





The effect of the Earth's rotation on North-South and South-North flowing rivers induces an asymmetrical channel profile due to the inertial resistance of the water. Being specifically heaviest, the colder bottom water has the greatest inertial resistance and is forced to the western side of the current. The colder water with greater carrying power and sweeping force therefore flows along the western bank, deepening the bed on this side and carrying the greater proportion of nutrients, whereas the warmer, specifically lighter water, reduced in carrying power and sweeping force and thus deficient in nutrients, flows along the eastern bank. As a result the western bank is generally more fertile than the eastern bank.

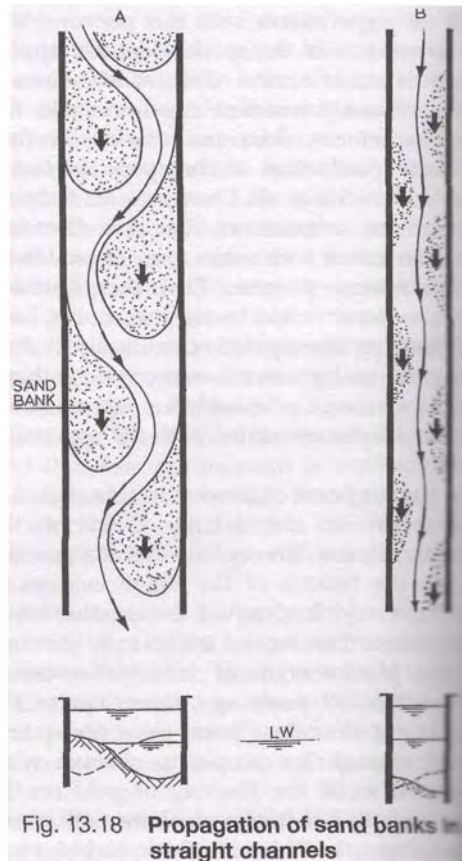
to the Sun or through unnatural regulation, the energies emitted are heat-sourced and debilitating. This is largely the result of the heat induced aggressiveness of the oxygen and the lower quality emulsions this produces. Here we are concerned with warm fermentation, which gives rise to the propagation of pathogenic bacteria. Moreover, because the axis of this vortex is vertical, lethal horizontally propagated radiation is broadcast, harmful to the surroundings. This functions in a manner similar to Wilhelm Reich's "deadly orgone radiation" (DOR), whose insidious effect is to upset the metabolism of all organic life. In character it is akin to the red discharge described in the water-jet experiment above. These injurious emissions chaoticise or create 'holes' as it were, in the procreative matrix of female fructigenic ethericities which also propagate horizontally (chapter 5, fig. 5.2), severely inhibiting their germinating function.

While the differences in water temperature responsible for either of the above phenomena are minimal, it is also important to remember that life and death are merely a question temperature variations that our modern scientific world considers wholly insignificant.

### 13.4 The Geostrophic Effect on Flow

A further important factor associated with the movement and vitality of rivers is known as the 'geostrophic effect', which is related to the Earth's rotation and its influence on the movement of the water. It goes without saying that the temperature gradient is also influenced.

Fig. 13.15 shows a section through the Earth and its curvature. The Sun, seen from the southern hemisphere, is shown rising on the right and moving across the sky towards the left. At the same time the Earth is rotating towards the Sun to the right. In a river with a west->east flow direction, the water therefore flows towards the Sun. Any individual 'packet' of water, as it were, in such a river is exposed to the Sun for a shorter period than if the flow was in the opposite direc-



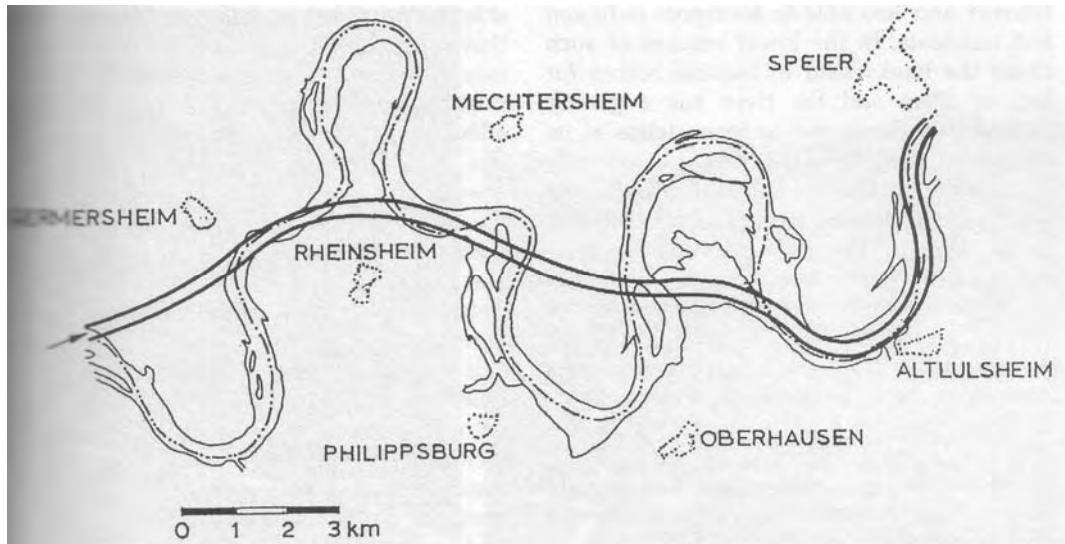


Fig. 13.19 Channel regulation on the Rhine upstream of Mannheim (19th Century)

tion. Since it is moving towards the Sun, this water-packet is therefore exposed to less heat.

At the same time; the flow of water is also faster than the Earth's rotation, due to the gradient down which it flows, so that the absolute velocity of flow relative to a stationary observer looking down from the South Pole is more rapid than if the movement were in the opposite direction. Such rivers tend to build up their banks evenly on both sides and the fertility of the adjacent areas is

also higher, because the overall temperature of the water is cooler, the sediment transport and the associated distribution of nutrients greater.

With an east->west flow (fig. 13.16), however, a similar water-packet is exposed to the Sun for much longer not only because it is moving in the same direction as the Sun, but also as a result of the water's own inertia, which causes its forward movement to be slightly retarded by the Earth's rotation. The upshot of this is that the water becomes far



Fig. 13.21 A canalised river

warmer and less able to transport sediment and nutrients. In the lower reaches of such rivers the banks tend to become barren for lack of them and the river has a greater tendency to flood and to form deltas at its confluence with the sea.

The flow conditions in north->south and south->north flowing rivers is again different to the above. Their flow-patterns are governed more by their lateral inertia relative to the Earth's rotation than by the passage of the Sun across the heavens. In fig. 13.17 the section drawn through such a river exhibits an asymmetrical profile. Owing to the water's fluid inertia, the main body of water has a tendency to bank up against the riverbank on the western side, i.e. the side opposite to the direction of the Earth's rotation.

Being the densest and heaviest, the coldest water is the most affected and therefore the main flow occurs along the western bank, where the channel is also generally deeper. Such rivers tend to be barren on the eastern

side, because, being shallower, the water on that side is hotter and the deposition of sediment therefore takes place sooner. When a positive temperature gradient is operative its effect tends to be more marked on the western bank than on the eastern and consequently the nutrient flow is greater towards the west than towards the east with a commensurate difference in relative fertility, or, as was shown in fig. 9.8, the river acts to extract nutrients from the warmer bank and deposit them on the cooler one.

If these rivers are at fairly high latitudes, however, and flow into cold or arctic seas, then as they move polewards the angle of incidence of the Sun's rays decreases, the water cools and such rivers carry their sediment far out into the seas, creating tongues and peninsulas in what is known as 'haff' formation. In the opposite case, such as the Nile, whose confluence with the sea is at much lower latitudes, in lieu of haff development, deltas form as the flow has become overheated and the water correspondingly

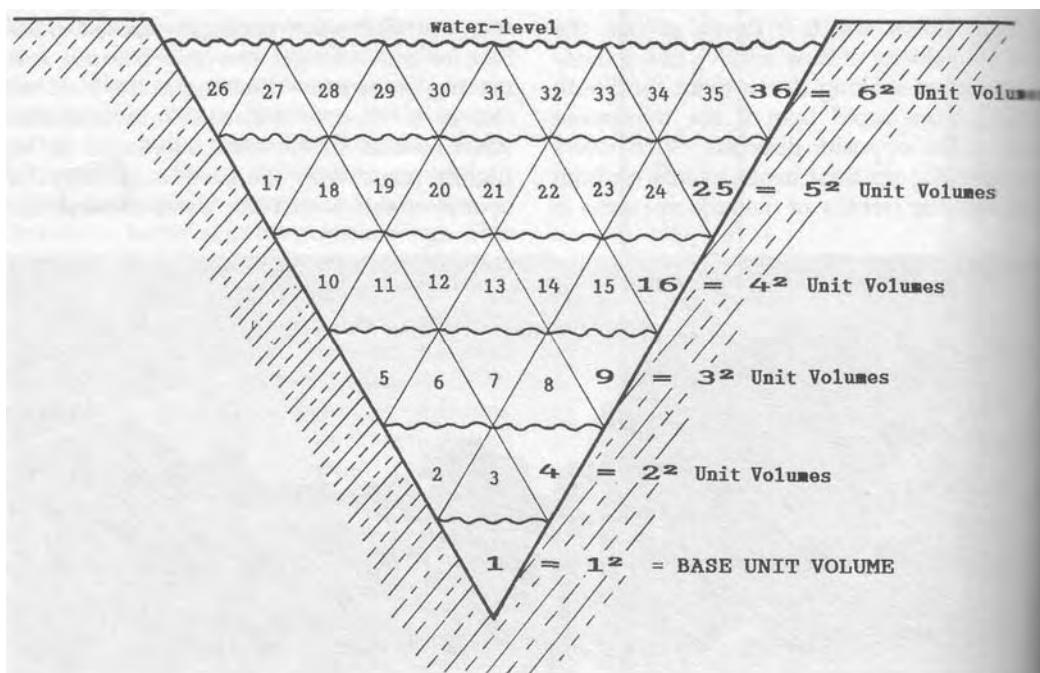


Fig. 13.22 The rationale of trapezoid channels

Relative to the base unit volume, the volume of water carried by the channel increases exponentially as the water-level rises



Fig. 13.20a A natural river

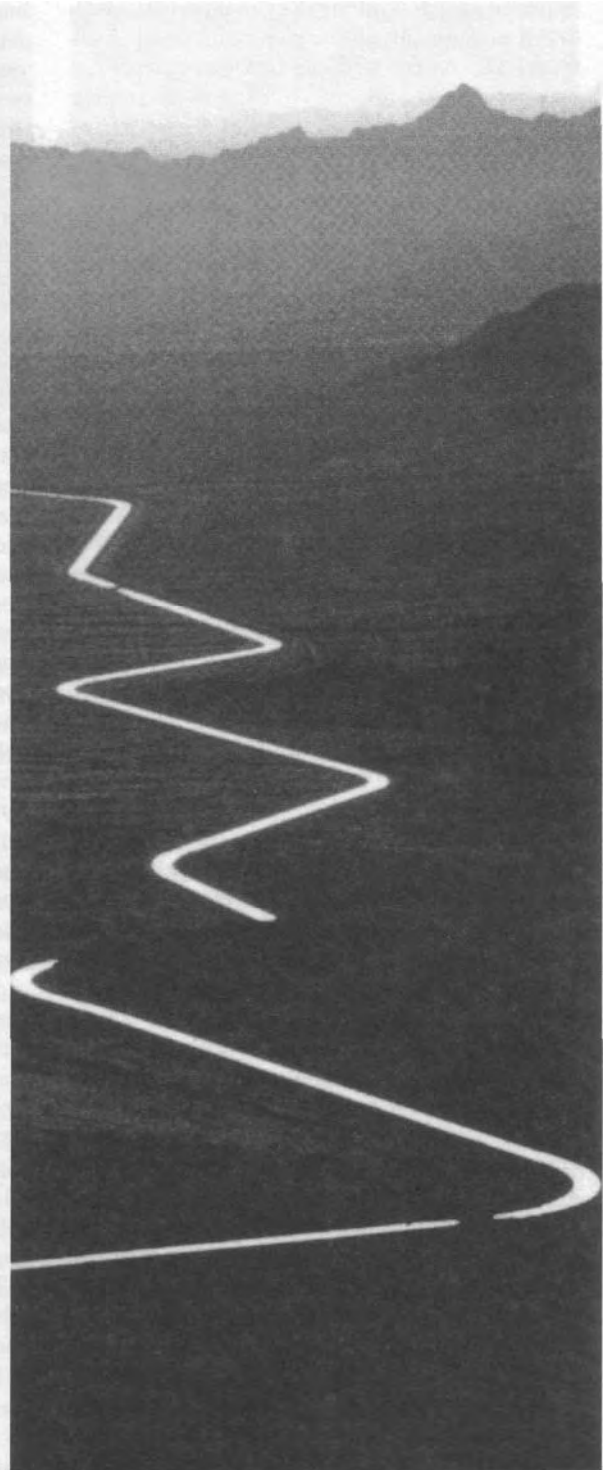


Fig. 13.20b A mechanically engineered watercourse

more sluggish and unable to keep its sediment in suspension.

### 13.5 The Effects of Conventional River Engineering

Of particular concern to Viktor Schaubberger was the way in which rivers were being regulated and water handled in total ignorance of Nature's laws. Forcing water to move in concrete trapezoid canals, in cylindrical steel pipes, etc., had the same effect as enshrouding a human being in a straitjacket, which makes it aggressive (effect of over-warming on the oxygen content), takes away its character, its freedom and robs it of all its energy. Under such conditions water can no longer remain benign and disease-free, but becomes violent and disease-promoting.

In fig. 13.18 taken from a textbook on hydraulics<sup>5</sup>, it can be seen that even in a straight channel, in this terrible 'straight'-jacket in which the water is confined, it still strives to dance, to waltz and, instead of flowing straight through this rigid canal, in which the flow should be straight and laminar according to hydraulic theory, the water still attempts to adopt its natural energetic flow-pattern in order to regain its former vitality.

To give the reader an idea of what modern river regulation entails, let us examine a section of that famous river, the Rhine fig. 13.19<sup>6</sup>, which, as documented in chapter 1, Viktor Schaubberger fought very strenuously, but in vain, to save. As with all naturally flowing watercourses, the meandering pattern of flow shown here is the way in which the Rhine wanted to move. It was the way in which it was able to optimise its energy and carrying capacity, although by the time this regulation was carried out, no doubt a great deal of the surrounding countryside had been deforested, with the inevitable consequences already discussed.

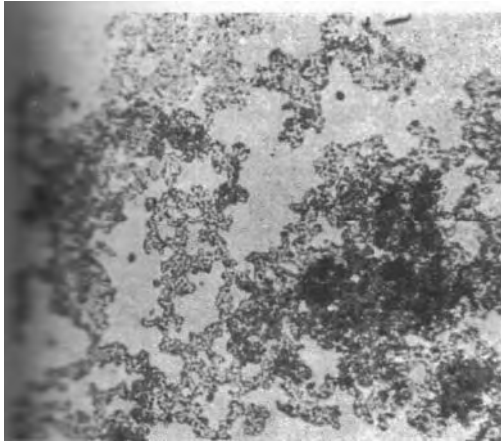
This natural pattern was not acceptable to the authorities, perhaps because it occupied too much space and very probably flooded fairly often. It was decided to build a trapezoid canal of uniform cross-section for its full

length. In other words, a constant was introduced into what is naturally a continually varying system, restricting the flow to a particular dimension and, of course, the river, this now almost moribund body of water, was unable to transport its sediment. As a result the bed needed constant dredging in order to maintain a safe flood depth.

The way the Rhine has been truncated with the construction of this trapezoid canal illustrates the awful deformation such regulations cause. All the wonderful serpentine bends have gone. There is nothing natural in the river bends shown here. Shown in dark outline (fig. 13.19), this 'hard-edged' trapezoid channel was laid out by river engineers in the misplaced belief that the flow of water would be improved and drainage accelerated.

The stark contrast between the configuration of naturally organic and artificially mechanical watercourses becomes even more apparent in figs. 13.20a and 13.20b<sup>7</sup>. In the first the variation in channel width, the radii and curvature of the river bends and the splitting of the channel can clearly be seen. These are entirely the result of the natural flow of water in this situation. It has carefully formed the bed in which it desires to move and can move with the least loss of energy. In the second, however, there is no variation in width at all. All the straight sections are very straight and all the bends have the same radius. The whole arrangement has a very sterile, unnatural and lifeless appearance and most certainly will deliver no vital, healthy water to the point of use. The design of this tree-less and shade-less irrigation canal also shows quite unequivocally that its designers were totally oblivious of the fact that water is a living substance and concerned themselves solely with the transport of a supposedly inert liquid.

The drainage channel in fig. 13.21 shows what a trapezoid profile actually is. The choice of a trapezoid shape for these canals is founded on the rationale that the amount of water they can carry rises exponentially as the volume of flow increases. In fig. 13.22 at the bottom of the 'V' the figure 1 denotes the cross-sectional area and height of the



Centrifugally Killed Water

The strongly crystalline structure of heavily oxygenated water can be detected with a microscope. If warmed it becomes an incubator of dangerous bacteria.



Centripetally Vitalised Water

Magnetically charged water is characterised by an amorphous structure, its content of free oxygen is for the most part bound.

Fig. 13.23 Viktor Schauberger's evidence from the microscope

base unit of flow. When the height is doubled, the volume of flow is quadrupled, i.e. it is four times as much as the base unit. If the height of water is trebled, then the amount of water conducted is nine-fold, and so on, the increase in the quantity of water for each level being indicated by the larger size number at the right hand side of the 'V'. Whatever the apparent logic behind the design, such canals in no way conform to water's natural flow-pattern, since the design is based on the small scale channelling of lifeless water in hydraulic laboratories, with no consideration given to temperature.

As a result of this the Rhine was robbed of all its internal energies, of all its dynamism. A living thing robbed of its energy is also robbed to a large extent of its character. Character, however, is a very subtle and immaterial form of energy. We cannot define it on a material scale, but it is nevertheless a form of energetic expression. Water possesses character just as much as you or I.

When it is prevented from moving, or when it is no longer given the freedom to move in the way it desires, it acts in the same way as an imprisoned human being. It becomes violent, tries vigorously to remove its shackles and, once free, wreaks havoc

until its inner sense of equilibrium has once more been restored. Here the callous treatment meted out to the Rhine by the authorities could be likened to a surgeon who amputates his patient's legs the better to enable him or her to walk!

But what actually happens to the water under these circumstances? By being prevented from flowing in its naturally ordained manner, both flow and water temperature tend to become uniform. No longitudinal vortices can form and therefore no cooling and energising processes can take place. On the contrary, vertically inclined transverse swirls of water form producing the pernicious horizontal emanations mentioned earlier. A negative temperature gradient also prevails almost constantly.

The sediment is left lying on the river bed and, with no longitudinal vortical activity; the pebbles and stones are no longer ground up and the river is starved of its life-giving provisions, as is the landscape through which it passes, all the more so if the riverbank is 'hard-edged'. The water becomes warmer, insipid, its flow sluggish and evaporation increases. Instead of the sparkling crystal clarity characteristic of vitally healthy streams, the water becomes opaque and murky. With all of its energies forcefully





Fig. 13.25  
The Egg and Hyperbolic  
Cone arrangement built  
in 1986 by the members  
of the Schladming  
Group at Birnberg,  
Austria.

It is most probable that the intended electricity generator was that designed by Viktor Schauburger in the 1920s for which he received a Patent No. 117749 on the 10th May 1930.

The PKS-Schladming Group:  
R. Harbacher, H. Zefferer,  
H. Schrempf, A. Schwab,  
T. Promberger, M. Dainhofer,  
V. Knaus, H. Mayer,  
11 January 1986



Fig. 13.24

removed, all that is left is a stale and lifeless liquid.

Becoming warmer as a result of all this gross mismanagement, its content of dissolved oxygen becomes increasingly aggressive. Lower forms of pathogenic bacteria freely evolve and propagate profusely in all areas in which the water can infiltrate. The river becomes an epicentre of all manner of diseases including cancer, imparting this condition to all forms of life forced to drink it or with which it comes in contact. Not only that but, in time of flood, the water itself becomes even more aggressive and malicious as it casts about, vainly seeking to regain its lost soul. With no automatic brake to restrain its forward movement, when the opportunity arises the water smashes into all in its path as it tries with its sheer weight and momentum to destroy the very structures that have robbed it of its psyche and to free itself of its bonds.

In the process, since it can no longer obtain its reproductive, uplifting energies in the lower reaches, which are derived from the carbonates normally present in the river bank and made available through the corrosion of sediment, it attempts to compensate for this by drawing down the remnants of its levitational energies from the upper reaches thereby exhausting these higher stretches of their live-giving function. Instead of being a carrier, mediator, accumulator and transformer of life-energies, the river has become a corpse. All of which is the appalling consequence of a mechanistically-minded science combined with a total ignorance of the true nature of water.

### 13.6 Hydro-Electric Power

This condition is further aggravated by present methods of hydro-electric power generation. Apart from the inappropriate design of dams used to store the water, discussed earlier in this chapter, the water itself is thrust down cylindrical pipes under enormous pressure. Upon leaving these it is then hurled against steel turbine blades where it is smashed to smithereens. The physical

structure of the water is literally demolished and all the dissolved oxygen, and even some of the oxygen in the water molecule itself, is centrifuged out of the water.

Viktor Schauburger obtained evidence of this effect and the photographs taken through a microscope in fig. 13.23 show the marked difference in the structure of water that has been subjected to centrifugence on the one hand and centripetence on the other. The fragmented appearance of the centrifugally moved water is unmistakable. Due to the high friction and warming caused by the slicing action of the blades, the oxygen becomes extremely aggressive and highly active. Drawn to the rear side of the blades by the partial vacuum (known as cavitation) created there due to their high rotational velocity, the naked oxygen savagely attacks the bare metal, severely pitting the surface. This damage is greatly aggravated if the percentage of dissolved oxygen is fairly high, with the result that the blades become perforated, making them virtually useless.

What emerges as the end-product of this physical and energetic disintegration, while certainly a liquid, is merely the skeleton of what was once healthy water. When this fragmented and largely oxygen-deficient water is finally ejected into the river, it has a disastrous effect on the fish and other aquatic life. It has long been known that certain species of fish disappear once these power stations are commissioned, and other forms of life have great difficulty in surviving below them.

In Australia, for example, it was recently reported that the fish in a Tasmanian river appeared to have been poisoned when water was discharged from the Riess Dam by the hydro-electric authority<sup>8</sup>. There was no evidence of chemical poisoning, but the water produced reactions in the fish, which killed them. These were akin to the 'bends' suffered by divers as a result of the formation of nitrogen bubbles in the blood. Generally speaking, it is only the more inferior species of fish that do manage to exist.

Now thoroughly impoverished, the water has to build itself up again completely before it can be of any benefit to the environment. In

order to do so it seeks out renewed supplies of oxygen and other high quality substances wherever it can find them, including living things. The first to fall victim to this onslaught are high quality aquatic organisms in which these high-grade substances are found. Fish are especially prone to attack due to the particularly intimate contact with this 'ravenous' water, as it is drawn in through their very delicate gill systems. Rather than the 'bends' as such, here we are more probably concerned with the 'galloping consumption' mentioned in chapter 10, in which the body's tissues are attacked by oxygen-hungry carbonates. But fish-life is not the only victim, the soil bordering on the river is also leached of its nutrients as the water searches to recover them for itself. The result: a large drop in soil fertility and productivity.

This extraordinarily destructive power-generating process, however, is totally unnecessary, because there is another way of generating hydro-electric power which does not harm the water. Not only that, but this method, devised by Viktor Schauburger in the early 1920s and eventually patented in 1930<sup>9</sup>, can produce 90% more electricity with a given volume of water, i.e. his invention uses 10% of the volume of water presently used to generate the same amount of power. Using water from a nearby stream Viktor installed this device to light his forest warden's house, which was too remote to be connected to any other source of supply. The design shown in fig. 13.24 is very simple, reflecting his statement that what is natural is silent, simple and cheap.

It consists of a brass or bronze nozzle, which is internally rifled in order to create a vortical flow, thereby reducing both pressure and friction as the water is centripetally drawn away from the sides. The water is therefore cooled, densified and energised as it passes through before encountering a double-spiral, or multiple-spiral, shell-like impeller attached to the shaft of a generator (not shown). Though not apparent on the diagram, the windings of these two or more entwined spirals are formed as semi-circular channels facing upwards towards the nozzle. They widen towards the base, and at the



same time gradually twist outwards and backwards in the opposite direction to the direction of rotation. As the whirling water emerges from the nozzle it is entrapped by these grooves and the impeller is made to spin at high speed. The purpose of the upwardly curving tails at the ends of the spirals is to exploit the very last ounce of the water's momentum.

I happened to see an example of a possible installation using this device while staying with Walter Schaubberger in Austria. In 1986 we were invited to visit a group of enthusiasts living around the township of Schlading who were interested in the practical application of Viktor Schaubberger's ideas and Walter Schaubberger's mathematics, intending to produce their own electricity. On the property of one of their members living on the Birnberg, they had carefully constructed the combination of egg and hyperbolic cone shown in fig. 13.25, which was sourced from a nearby brook. Water from the stream was fed into the upper part of the egg tangentially, thereby

providing the initial impulse for the creation of a vortex.

At the time no generator had been installed and I was told it was being specially manufactured. At first I assumed that it would be a small conventional turbine but, knowing their keen interest in all things Schaubberger, the impeller that was being built was probably the one described above. Unfortunately I have had no further contact with this group and therefore I cannot relate what was the outcome.

Successful or not, what this does show is that small groups of people working together cooperatively can provide their own sources of cheap power and can do much to re-establish their independence from centralised power and control over their lives. The problem that confronts us all, alas, is that it is the centralised electricity authorities who write the rules which ensure as far as possible that no-one can escape the net. The greater the number of people who are willing to challenge this central control over their independence, the more difficult it will become for those to continue holding such power over us.

### Notes

1. From Viktor Schaubberger's treatise, "Temperature and the Movement of Water" ("Temperatur und Wasserbewegung"): *Die Wasservirtschaft*, No.20,1930.
2. *Trees and the New Earth*, p.117, published 1953.
3. Much of this material is to be found translated into English in the Ecotechnology series — Viktor Schaubberger's own writings in four volumes: *The Water Wizard*, *Nature as Teacher*, *The Fertile Earth*, and *The Energy Evolution*, collected, translated and edited by Callum Coats, Newleaf, Dublin 1997-2000.
4. Parts of which are also to be found in *ibid*.
5. Figs. 5/2.14a & 5/2.14b from *Principles of River Engineering* by P.Ph.Jansen and others: Longman Harlow, England. ISBN 0-273-01139-1.
6. *ibid*. fig.5/2.17.
7. Photographs by Peter Essick, c/o Aurora & Quanta Productions, Main Street, Box 266, Lovell, ME 04051, USA.
8. ABC News item 27 November 1990.
9. Austrian Patent No.117749.

## WATER SUPPLY

### The Wooden Water Main

ver active in the sphere of water, Viktor Schaubberger also turned his attention to the problems of water supply and ways of overcoming them through his profound knowledge of this essence of life. From archeological excavations it has become evident that in earlier times, in the time of the Romans and Greeks, the ancient Egyptians and Babylonians, for example, water and its nature were far better understood than today. We, however, in our love affair with mechanics, have largely lost contact with the organics of Nature.

In their systems of water reticulation, as far as possible water mains were constructed of natural stone or high-grade timber. In time, however, the sources of high-quality timber for these pipes was exhausted and if no suitable stone was easily available, then other materials such as metals had to be sought. To find the right type of metal, coins of various alloys, which had been thrown into fountains for ritualistic purposes, were studied. Some dissolved altogether, while others became totally encrusted. The coins that remained clean, though perhaps slightly tarnished, were chosen as most suitable and it was noted that pure iron did not rust.

However, even here great errors were made. The Romans unfortunately stumbled upon lead, which eventually led to their undoing. While its use in the production of water conduits no doubt contributed to the increasing lead-induced madness amongst the rich upper classes like Caligula's who

could afford its use, it was actually the leaden tankards and goblets from which they drank copiously which brought about their ultimate demise. The acid in the wine reacted with the lead, dissolving some of it in the process, the cumulative effect of which caused insanity.

Originally, before the advent of the Industrial Revolution and the enormous expansion of cities and towns, the water in many cities in Europe and even in New York had long been supplied in wooden water mains, there being an ample supply of suitable timber, coopering expertise and no other technical alternative. As advances were made in technology, our civilisation then decided to use the economically more viable cast-iron water mains - subsequently to be replaced with steel - in ignorance of the fact that the longer water is transported in such mains, the worse its quality.

Nothing natural and alive can ever maintain its quality in sealed vessels, because all natural systems are open and must be able to interact with the environment. They all need to be able to breathe, and water is no exception. But because of our rather jaundiced, superficial view of life, we do not readily credit any process of Nature with any autonomy, any consciousness, self-organisational ability or intelligence. As a result we inaugurate processes that eventually bring about our own undoing.

Viktor Schaubberger's research showed that in Vienna, when the existing wooden water mains were extended with cast-iron or steel pipes, internally coated with bituminous

material in order to supply new suburbs, the incidence of cancer also rose commensurately as shown by the following statistics assembled by him:

In 1920, 2400 people died of cancer in Vienna; in 1926, 3700 fatal cases of cancer were recorded; in 1931, 4900 human lives fell victim to this terrible illness. In the figures quoted above the progressive spread of this disease is clearly evident.<sup>1</sup>

The flow in a cylindrical pipe is generally chaotic, so that the whole structure of water is gradually broken up in the process. In its passage down the pipe, the water is exposed to processes similar to electrolysis, generated through the friction of the water against the pipe-walls which gradually decompose the dissolved trace and other substances, heating up the water at the same time. It should be remembered here that very slight differences in temperature can produce effects apparently out of all proportion to the magnitude of the original causes. The water's dis-

solved oxygen content is gradually consumed as the material of the pipe gradually oxidises into rust. While rust itself is not poisonous, in association with the warmer water, its precipitation as sludge on the bottom of a steel pipe makes it an admirable medium for the breeding and propagation of pathogenic bacteria.

But rust also has other disadvantages. Since the volume it takes up is about ten times that of the base, unruined material, its deposition decreases the effective diameter of the pipe, further constricting the flow, thereby unfavourably affecting the carrying and transportive capacity of the water. Instead of healthy, wholesome water, what emerges at the point of use is an unholy brew, a water-corpse, made even worse by all the chemical additives, such as the chlorine required to disinfect it. By drinking such chlorinated water, people become vulnerable to disease. It is no wonder therefore, and as Viktor Schauberger often said, that a bottle of good water will one day become far more expensive than a bottle of

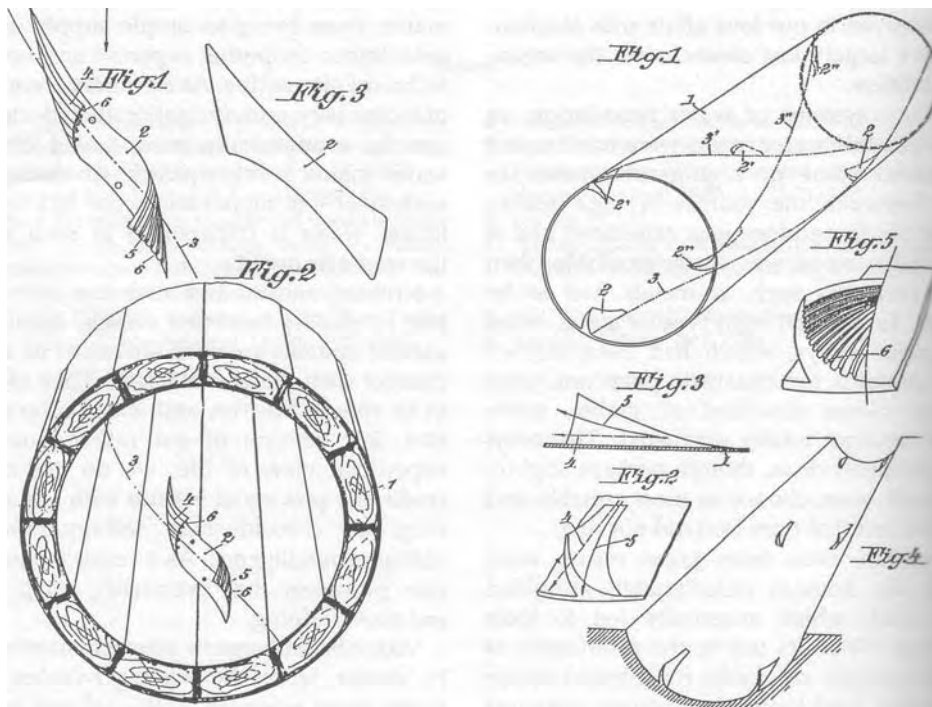


Fig. 14.1 & 2 Illustrations from a patent application for a wooden drinking water pipe

wine and it will be all the more highly prized because of its rarity.

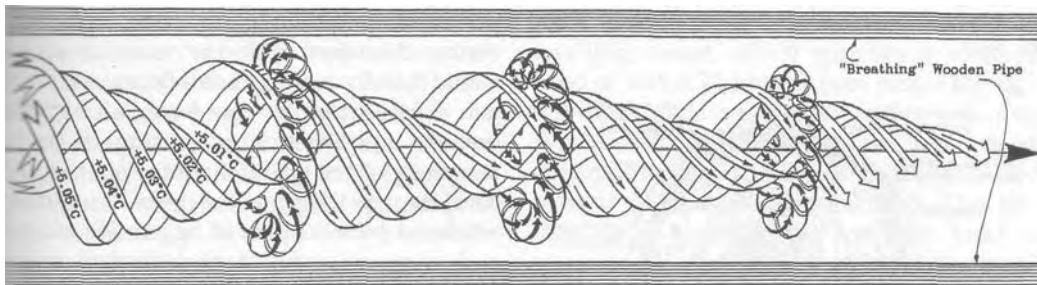
In an attempt to remedy the situation and to reduce the incidence of cancer, in 1930 Viktor applied for patents for a pipe<sup>2</sup> made of wooden staves, like a barrel, which was designed to enhance the energy and purity of water flowing through it. This was followed about 15 months later by a further patent application<sup>3</sup> in 1931. As designed, the flow dynamic of this wooden pipe and the pipe itself, which breathes, are ideally suited to the containment of an alive body, i.e. water, and to the transport of drinking water, so that when the water arrives at the point of use, it has already been totally purified without the use of any artificial additives or more importantly, contaminants. Both pipes, shown in figs. 14.1 & 14.2, will be examined jointly since they perform the same function.

The two designs involve the creation of longitudinal vortices within the pipe. These are not simple vortices, however, but are double-spiral ones. That is to say, the coldest central core-water describes a single spiral motion, while the peripheral flow describes a double-spiral motion, i.e. it rotates about itself, while at the same time spiralling around the central core. This double-spiral motion is induced by three parallel systems of guide-vanes, which have the same effect as rifling, and are

attached to the pipe-walls at certain specific locations.

The vanes themselves are made of silver-plated copper, partly because of the energies derived from the galvanic currents and other more subtle energies generated between the two metals of opposite gender in this copper(female)-silver(male) biometal composition, and partly because silver has bactericidal properties. In order to reduce any lateral movement of the water across their surfaces, the guide-vanes are fluted, directing the water towards the centre. These are placed at intervals along a helical path inside the pipe, as shown on fig. 14.2, and are angled and aligned to the spiral flow of water, directing it from one guide-vane to the next. The relation of their curvature to the axis of the pipe is always constant. The purpose of the guide-vanes is not only to create the necessary vortices, but also to deflect the flow away from the sides, thereby reducing the heating effects of friction to a minimum. In order to understand this complex double-spiral dynamic figs. 14.3 & 14.4, which respectively show the pipe in longitudinal section and cross-section should be studied simultaneously.

As the water is deflected from a straight path by the guide-vanes, a certain amount acts in a manner akin to ball-bearings and is in contact with both the outer face of the



inner core-water and the inner face of the pipe. It is a peculiar movement and difficult to describe, having components of motion in different directions. In a certain sense this outer, peripheral movement could be described as toroidal, i.e. a doughnut-shaped vortical rotation like a smoke ring. 'Helically toroidal' might be a more appropriate description, however, since this outer water also has a translatory motion in a spiral around and with the core-water.

Viewed along the longitudinal section (fig. 14.3) the inner portion of the toroid in contact with the inner core-water moves to the right in the direction of flow, whereas the direction of movement of the outer portion, which is in contact with the pipe, has a motion component in the opposite direction. This is only a figure of speech, however, in an attempt to explain the process, because upon coming in contact with the wall-surfaces, each water particle does not actually move backwards up the pipe, but pauses briefly before being caught up again in the forward flow.

Looking at the cross-section in fig. 14.4 the situation is similar, the small-scale rotation being in the opposite sense to that of the central spiral flow. The overall direction of rotation of the whole of this peripheral water as a body, however, is in the same direction as the central core as indicated by the larger triangular-headed arrows. That the movement of all the water in this type of pipe is faster than in conventional cylindrical pipes was con-

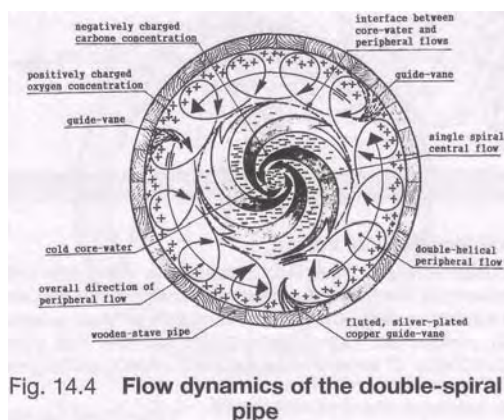
firmed by Professor Forchheimer in his expert opinion<sup>3</sup> on Viktor Schauburger's novel dam design discussed previously, wherein he states with regard to a proposed overflow pipe that:

...when a substantial influx of water occurs, some of it is to be discharged directly into the Eger through a fairly large diameter pipe, which branches off on the left-hand side of the reservoir at a high level. This pipe will be rifled, since it has been shown that this produces a sharp increase in the flow-velocity.

With differing water temperatures, once again the colder water is drawn down the middle and the coldest, heaviest core-water accelerates, sucking the other specifically lighter waters after it. Here centripetal and centrifugal forces are again active, and in the initial phases of flow the dissolved oxygen is squeezed out of the central core and impelled centrifugally towards the periphery, assisted by the toroidal flow. In the same way that the oxygen is removed from the centre, so too is any fine suspended matter which is then pressed against the pipe walls. The larger suspended solids, owing to their greater density and mass, continue to be transported down the central axis.

At the periphery, friction is at a maximum and due to the resultant warming, the oxygen, already stimulated by centrifugence, becomes even more aggressive and through processes of oxidation the fine suspended matter combines with the material of the walls, thereby sealing them. Because no oxygen is present in the core-water, all bacteria, noxious and beneficial alike, migrate to the periphery of the pipe, where the inferior, less complex, pathogenic bacteria are overwhelmed by a surplus of aggressive oxygen and eliminated. The higher quality micro-organisms, which can support and require higher levels of oxygen to exist are however, largely unscathed. In this way the water becomes increasingly pure, disease- and germ-free.

There being no iron or steel to interact, with, and the pathogens having now been removed, the remaining free dissolved oxy-



gen in the pipe does not get totally consumed. With the cessation of oxidative activity coupled with the resultant cooling, the residual oxygen is returned by the toroidal vortices to the interface with the central core-water. Here it interacts energetically with the now oxygen-hungry carbonates in the core flow under cold processes of oxidation. This principally centripetal 'original' or 'life-originating' form of motion not only produces dynagens - the immaterial energy generators - but also increases the carbonic acid content, which together raise the overall vitality, life-energy and wholesomeness of the water.

In order to function properly it is important that certain precautions are taken. To be laid properly, these wooden water mains should be embedded in sand and insulated from both light and heat. In other words, a cool controlled environment is necessary, which, if maintained, will make the wooden pipe outlast a steel one, since it is not subjected to decay. Because it is a breathing system, a certain minimal amount (like sweat) of the water reaches the outside of the pipe, where some evaporation occurs. This acts to cool the exterior of the pipe, which in turn further cools the contents. Coupled with the internal vortical flow which, as discussed before is a process involving cooling and the enhancement of the water's intrinsic life-energy, then the whole body of water gradually becomes cooler as it flows. Due to the various oxidation processes taking place en route, certain reduction processes also occur which improve the quality of the water and any other matter transported in it, such as ore, etc., which are carried down the middle of the pipe without touching the sides. Owing to the external pressure-relieving action of the longitudinal vortices, the actual size and thickness of the pipe-wall can be fairly minimal.

## 14.2 The Stuttgart Investigation

Having long been ridiculed by the scientific establishment and wanting to obtain irrefutable proof of the validity of his ideas on water movement, in 1952,

at his own expense, Viktor Schaubberger approached the Stuttgart Technical University to have the matter settled once and for all. Here his theories on water were to be tested on a strictly scientific basis under the direction of Professor Franz Popel, director of the Institute of Hygiene. When first approached Popel refused, saying that it would be a waste of his time and in any case would produce no worthwhile results.

But, yet again, higher powers came to Viktor's aid in the unlikely form of the then Bonn Government, who had been so incensed at Viktor's vigorous attacks on their management of the Rhine that they were only too delighted to pay half the costs of the investigation, believing that it would thoroughly discredit him. Under these changed circumstances Professor Popel agreed to undertake the investigation using the pipes of various configurations that Viktor supplied (fig. 14.5). These were never returned to him upon completion of the project, despite the fact that these rifled and helical pipes were extremely difficult and expensive to fabricate, because their unusual shape made any of the normal casting processes almost impossible. An accurate description of these various shapes and their respective flows is rather difficult. They could be construed as 'double-rifled', 'double torsional flow' or 'spiral helical' pipes.

The experimental arrangement, the basis of the investigation shown in fig. 14.6, is such that the water enters the pipe from a levelling vessel, which supplies a constant head of water. The water then passes through whichever pipe is under test and into the outlet chamber, subsequently flowing to waste. Adjacent to the outlet, three small, calibrated vertical glass tubes are arranged. The left-hand tube measures the available head of water and is directly connected to the levelling vessel. The middle tube is connected into the system immediately at the end of the test pipe and the right-hand tube at a point just below the outlet at the top of the expanding cone. The middle and right-hand tubes measure the drop or rise in pressure. The higher the indicated water-levels, the less the loss of head and friction. By lowering the whole of

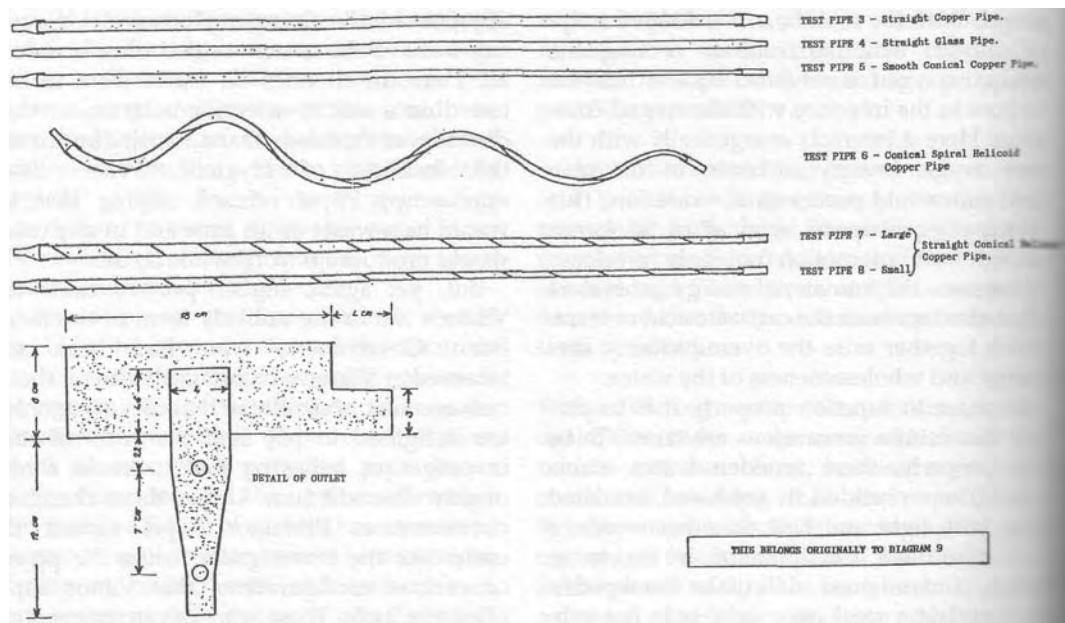


Fig. 14.5 Pipes of various configurations that Schauburger supplied to Prof. Popel

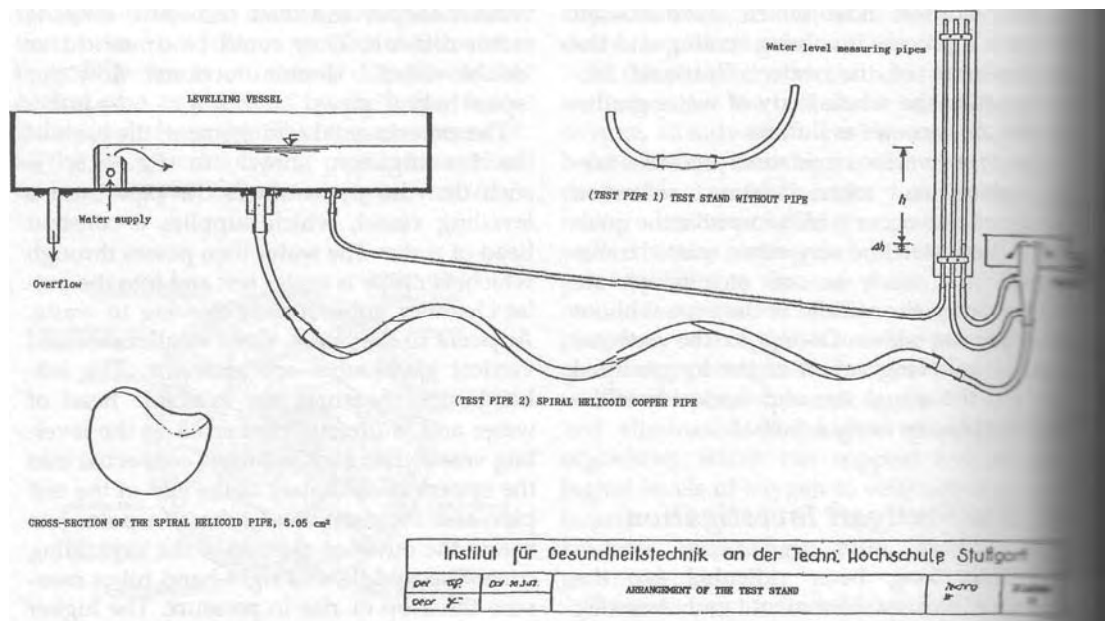


Fig. 14.6 Prof. Popel's experiment with the spherical-helical copper pipe

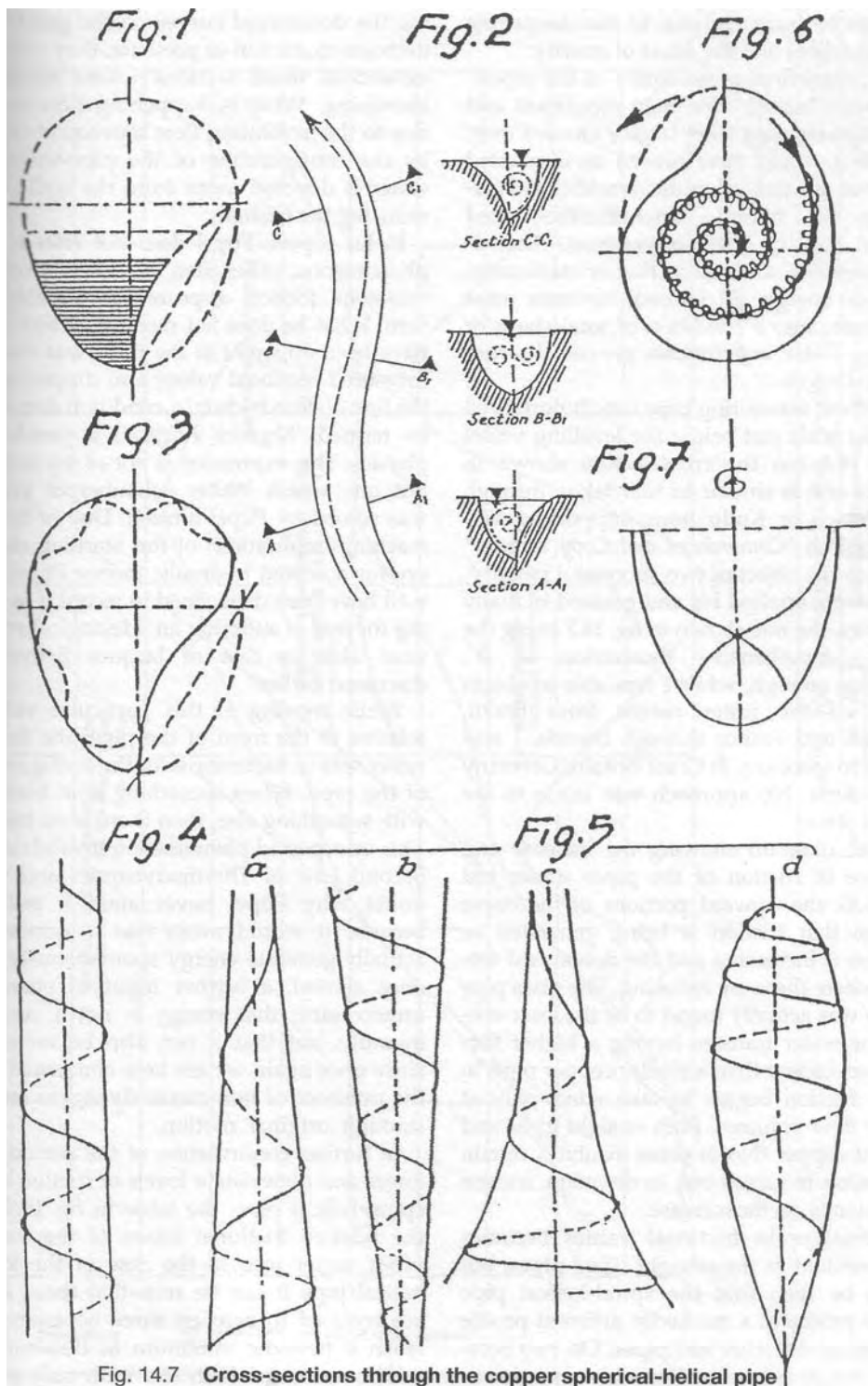


Fig. 14.7 Cross-sections through the copper spherical-helical pipe



the right-hand side of the arrangement, the flow can be increased due to the steepening of the gradient and the effect of gravity.

The actual final presentation of the report<sup>5</sup> was rather biased. The most significant and revolutionary data were largely glossed over, because it would have caused an unwanted upheaval in the scientific world by overturning the hitherto scientifically sacred 'Second Law of Thermodynamics'. According to this law, without further or continuous input of energy, all (closed) systems must degenerate into a condition of total chaos or entropy. These experiments proved the contrary to be true.

The most interesting pipe (no. 2) portrayed in larger scale just below the levelling vessel in fig. 14.6 has the cross-section shown in fig. 14.7 and is similar to that taken through an antelope or Kudu horn, supporting Viktor's maxim "Comprehend and Copy Nature!" This was the object of two successful patents<sup>6</sup>, which were applied for and granted in many countries, the one shown in fig. 14.7 being the more comprehensive illustration of it<sup>7</sup>. Strangely enough, while I was able to obtain copies of the fuller patent from Brazil, Portugal and France through friends, I was unable to trace any in Great Britain, Germany and Austria. No approach was made to the United States.

In the diagram showing the increase and decrease in friction of the pipes under test (fig. 14.8), the upward portions of the curve indicate that friction is being generated or pressure is increasing and the downward sections where these are reducing. The glass pipe (No. 4) was actually found to be the least suitable for water transfer, having a higher frictional coefficient than a similar copper pipe, in which friction begins to take effect only at higher flow volumes. Both straight glass and straight copper (No. 3) pipes exhibit a certain fluctuation in values but, in the main, friction is constantly on the increase.

Fluctuation in frictional values becomes more evident in the straight rifled pipes, but it can be seen that the spiral-helical pipe (No. 2) produces a markedly different profile to those of the other test-pipes. On two occasions, it dips below the line of zero friction at

the bottom of the graph. Instead of interpreting the downward curves on the graph as a decrease in friction or pressure, they could be viewed as those sections where suction is increasing. What is happening here is that due to the involuting flow movement caused by the configuration of the pipe-walls, the water is directed away from the walls, thus reducing the friction.

In his report, Popel does not refer to this phenomenon, other than to state that on two occasions friction appeared to diminish to zero. What he does not mention, which must have been apparent at the time, was that the measured frictional values also dipped below the line of zero friction; a condition that could be termed 'Negative Friction', a paradox of physics. This expression is not of my making, but one which Walter Schauburger averred was coined by Popel himself. Due to the far-reaching implications of this startling discovery for accepted hydraulic theory, Popel may well have been disinclined to record it in writing for fear of suffering an 'ideological repression' akin to that of Jacques Benveniste, discussed earlier.

While moving at this particular velocity relative to the form of the pipe, the flow of water was in harmony with the configuration of the pipe. When something is in harmony with something else, then there is no friction. This unexpected phenomenon invalidates the Second Law of Thermodynamics and is no doubt why Popel never aired it publicly, because it would mean that a system can actually generate energy spontaneously; that once started, a further input of energy is unnecessary; that energy is not a constant quantity, but that it can also be increased, since once again we are here concerned with the presence of immaterial dynagens created through 'original' motion.

In further confirmation of the periodically lower and nonexistent levels of friction in the spiral-helical pipe, the table in fig. 14.9 lists the relative frictional losses of the various pipes under test. In the case of the spiral-helical pipe it can be seen that these losses are reduced to zero on three occasions and reach a periodic minimum at flow-rates of 0.191lit/sec and 0.441lit/sec. With only one or

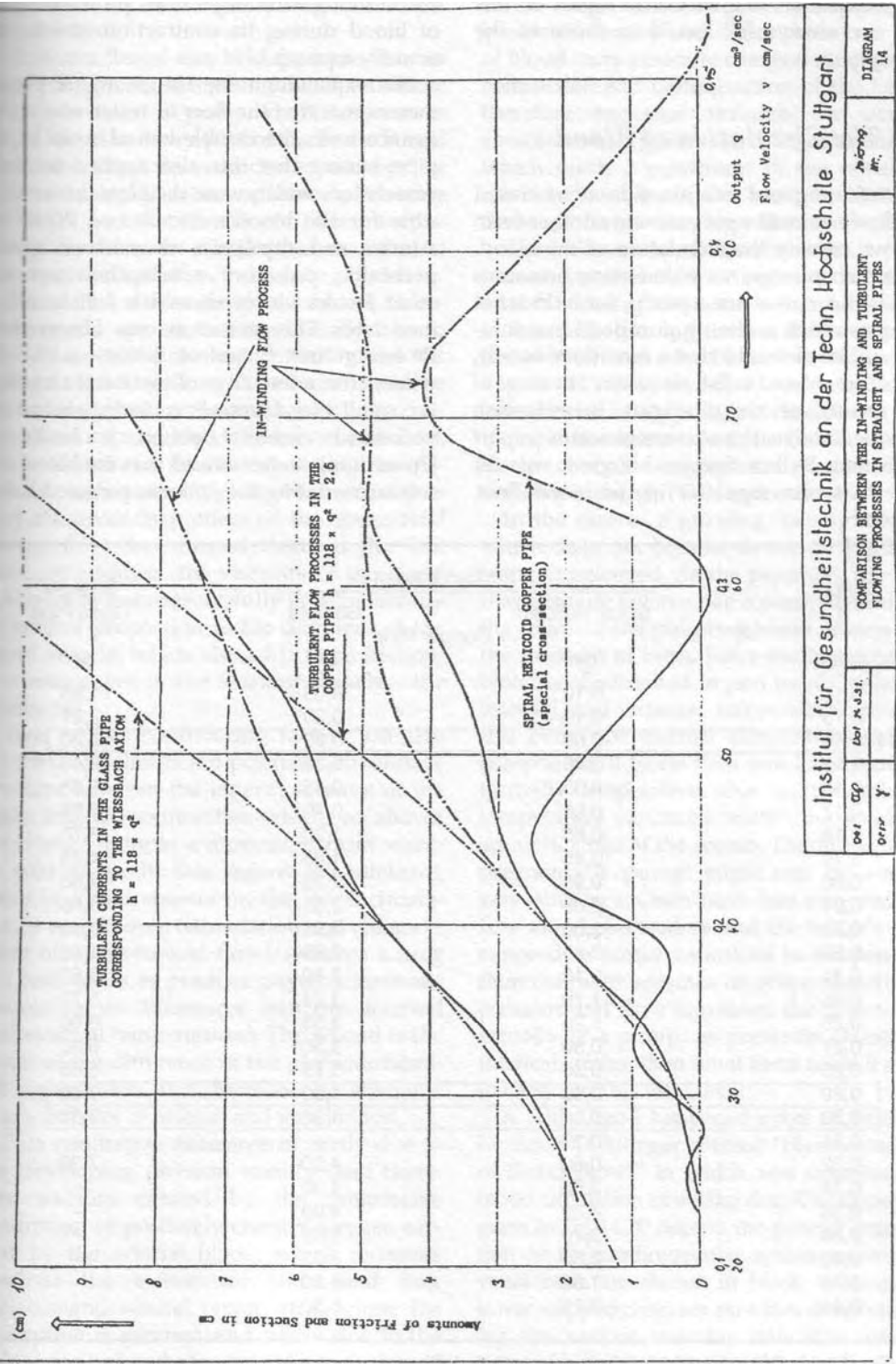


Fig. 14.8 The increase and decrease of friction in pipes

two exceptions, the frictional losses of this pipe are always far less than those of the other pipes.

### 14.3 The Circulation of Blood

Continuing our examination of enclosed flows we will now examine another form of flow, namely the circulation of the blood. Viktor Schauberger stated on many occasions that the heart was not a pump, for it does not pump as much as 'being pumped'! In a similar vein, he also said that a bird does not fly, but is 'flown' and a fish 'is swum'. In view of the results of the Stuttgart investigation described above, this statement seems in part confirmed. Its function, in his view, was far more that of a regulator of the blood flow,

and although the heart does produce spurts of blood during its contraction, it was not actually a pump.

His explanation for the Stuttgart phenomenon was that the flow of water was in resonance with the double-helical form of the pipe, stating that this also applied to blood vessels too, which were the elements responsible for the blood's circulation. While the arteries and capillaries themselves have a peristaltic, pulsatory action, there are also other factors involved, which will be examined later. This pulsation was observed by Professor Kurt Bergel of Berlin (ca.1925-30) when, after a few days of incubation to allow for small blood vessels to form around the yolk-sac, he carefully opened up a bird's egg. Upon doing so he noticed that the blood vessels surrounding the yolk-sac pulsated before

Output q	Friction Losses in		Straight Glass Pipe
	Spiral Helicoid	Copper Pipe	
l/sec	cm	cm	cm
0,12	0,10	0,05	1,85
0,13	0,19	0,20	2,07
0,14	0,00	0,23	2,20
0,15	0,40	0,33	2,48
0,16	0,95	0,45	2,85
0,17	0,95	0,70	3,25
0,18	0,65	1,20	3,75
0,19	0,45	1,85	4,25
0,20	0,95	2,25	4,65
0,21	2,05	2,55	5,05
0,22	2,50	2,85	5,30
0,23	2,45	2,95	5,45
0,24	2,10	3,10	5,60
0,25	1,70	3,24	5,79
0,26	1,25	3,35	6,00
0,27	0,80	3,50	6,20
0,28	0,35	3,75	6,65
0,29	0,00	4,00	7,00
0,30	0,00	4,30	7,30
0,31	0,10	-	-
0,32	0,80	4,90	7,30
0,34	3,50	4,90	-
0,36	4,60	4,90	-
0,38	3,70	5,05	-
0,40	2,50	5,38	-
0,42	1,60	5,80	-
0,44	0,70	6,50	-

Fig. 14.9 Output and friction losses of straight and spiral test pipes of glass and copper

they cooled off, although no heart had as yet been formed.

Professor Bergel also held the same view as Viktor Schauberger, rejecting the idea that the heart a sort of pump whose task was to impel blood to every part of the body. Bergel maintained that this was carried out by "the millions of highly active capillaries permeating the body," and that "health and disease are primarily dependent on the faultless or disturbed activity of the capillaries."<sup>8</sup>

The actual movement of the blood, therefore, would appear to arise initially due to the processes of pulsation. In the light of the Stuttgart Investigation, however, it could be argued that the flow is enhanced by the configuration of the blood vessels themselves, whose shape and structure, recalling the discussion on new energies in chapter 3, represent the secondary effect of the immaterial energy flow that created them in the first place. In addition, the viscosity of the blood is known to decrease usefully or intentionally in inverse proportion to the diameter of the blood vessels, which also adds to its friction-free movement in the smallest vessels - the capillaries.

Two further contributing factors are also present. The first is the positive temperature gradient between the innermost parts of the body and the extremities which, as shown previously induces a movement from warm to cold areas. In this regard the vitalising effect of a cold shower on the blood circulation is well known (stimulation and enhancement of warm-to-cold flow), whereas a long hot bath tends to produce physical lassitude (reduction of differences between internal and external temperatures). The second is the result of the difference in the physico-chemical composition and therefore the energetic characteristics of arterial and venal blood.

This qualitative difference is partly due to the developing physical vacuity (and therefore suction) created by the progressive absorption of positively-charged oxygen carried by the arterial blood, which increases towards the extremities (skin and hair replacement, wound repair, etc.), where the absorption is greatest, and partly due to the rising desire for the reabsorption of oxygen

in the lungs by the negatively-charged, carbon-rich venal blood. Since these two types of blood carry opposite charges, the muscular contraction and closing action of the heart is therefore triggered through the periodic equalisation of positive and negative charges, which reach a maximum in the venal and arterial chambers of the heart itself, due to the large charge-carrying volume of both.

The hallmark of all life-processes is pulsation and, rather than acting as a pump, the vital function of the heart is therefore to promote a pulsation in the flow. Following from the above it can also be stated with a large degree of certainty that we breathe not because the heart 'pumps', but that the heart 'pumps' because we breathe (intake of positively charged oxygen and expulsion of negatively charged CO<sub>2</sub> and water).

In the case of a growing foetus, however, which does not breathe as we do (its blood being oxygenated via the placenta), the heart may actually behave like a pump, reinforcing the action of the pulsating blood vessels until the moment of birth. Since the movement of blood is conditioned in part by differences in internal and external temperature, prior to this event the normal temperature-induced component of blood flow would be rendered virtually inoperative, due to the minimal temperature variations within the insulating amniotic fluid of the womb. Therefore during pregnancy a 'pump' might well be a necessary auxiliary. Once birth has occurred, the first vital breath taken and the infant's body exposed to larger variations in temperature, then the heart assumes its proper function of pulsator and flow regulator. But if the heart actually is a pump, as presently claimed in medical circles, then what force must it apply to carry out this vital task?

A while ago I happened upon an article by Dr. Ernst O. Attinger entitled "Hydrodynamics of Blood Flow"<sup>9</sup> in which was described the blood circulation of a 13kg dog. The upper diagram in fig. 14.10 depicts the general organisation of the cardiovascular system, where the venal beds are shown in black, whereas the lower stepped diagram provides data concerning the various vascular beds (the different types of blood vessel) of a 13kg dog, listing the

values of the viscous resistance, length of branches, volume of flow, diameter, etc, of the different categories of blood vessel. When I calculated the total length of all the branches in each segment of the 13kg dog's vascular tree, I found that the total overall length of all the blood vessels in the system amounted to 144,017,280 centimetres or 1,440.173km! On a pro rata basis, this would mean that the human body, averagely 5.5 times the size of the dog by weight, i.e. 71.5kg, would contain at least 7,920km of blood vessels! Data from other sources on the other hand places this at 60,000 miles or 96,500km<sup>10</sup>.

In recent correspondence with Dr. Attinger about his paper, the average value of the viscous resistance to be overcome by the dog's heart in order to move the blood, amounts to 5,332 dyne sec/cm<sup>5</sup>, which is equal to a force of 0.005437kg or about 5 1/2 grams (1 dyne=1.01972 x 10<sup>-6</sup> kg), the average flow velocity in the capillaries being considerably less than 1cm/sec.

According to Walter Schaubberger the output of the human heart amounts to 0.003 horsepower but, wanting further confirmation, I made enquiries at the University of Queensland and was told that it functions at about 1.5 watts. With this small amount of energy, equivalent to the average torch battery, 1/10th of a litre of blood is delivered to the arterial network about 75 times a minute or 100,000 times a day. Over an average lifetime at roughly 8,000 litres per day, 175 million litres of blood pass through the heart.

Presumably this dog's heart functioned with somewhat less energy due to its smaller

size. It therefore seems almost inconceivable that the relatively small heart of this 13kg dog would have sufficient power to force the blood through 1,440km of blood vessels, which in the light of the above does seem to be a Herculean task. The power of the heart, therefore, would appear phenomenal for its size and, according to Walter Schaubberger's research in this area, it has been determined that the work of the human heart would be enough to raise a weight of about 40 tonnes per year to a height of 1m. I have also carried out my own calculations, and the figure I arrived at was 4,296.78 tonnes<sup>11</sup>.

Apart from the reduction in blood viscosity with the decrease in the size of the blood vessels, if as has been suggested earlier, energy creates the vessel most conducive to its desired form of movement in a given situation, then the pulsating, almost frictionless flow of blood over these enormous distances becomes more understandable. The factor omitted in all scientific calculation in hydrodynamics, however, or any other energetic process for that matter, is the natural desiring for energy to move frictionlessly in healthy animate, organic systems.

In the light of this research, of the description of double-spiral pipes, the Stuttgart investigation and the circulation of blood, it can be seen that Viktor Schaubberger's theories have been thoroughly vindicated. Perhaps, therefore, their description here will provide the basis for more productive investigative research and practical application, which is most urgently needed if we are to emerge from our present ecological and environmental crisis.

## Organisation and Physical Properties of the Cardiovascular System

## A. Functional Anatomy

The general organization of the cardiovascular system is schematically represented in Fig. 1. It can be divided roughly into four parts:

1. Two pumps, the left and right hearts.
2. A distributing system, the arteries, leading from each ventricle into the periphery.
3. An exchange system, the capillaries, where metabolites diffuse across a membrane both from and into the tissue.
4. A collecting system, the veins, which transport the blood back to the pump.

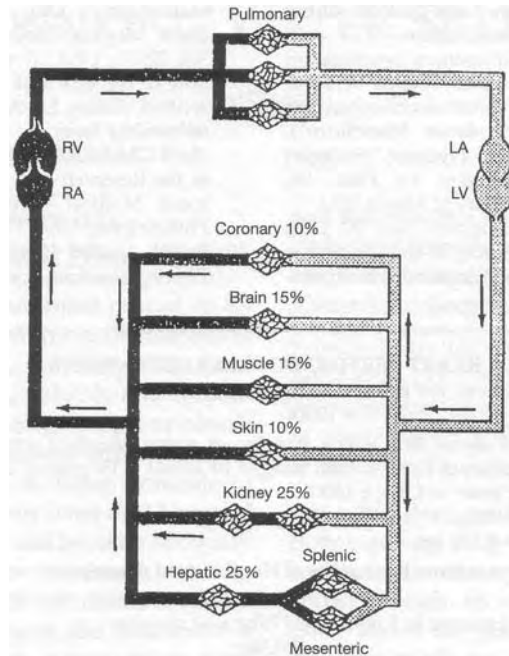


Fig. 1 Schema of the circulation. The numbers indicate the approximate percentage of the cardiac output fed into each of the six (arbitrarily selected) parallel beds. Note that there are two capillary systems in the kidney and three in the splanchnic circulation. LA, left atrium; LV, left ventricle; RA, right atrium; RV, right ventricle.

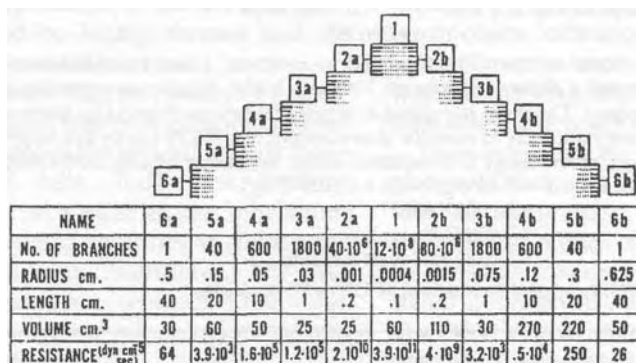


Fig. 3 Geometry of the peripheral vascular tree of a 13-kg dog. The diagram illustrates the marked changes in total cross section along the peripheral vascular bed. Blocks are numbered as follows: 1, capillaries; 2a, arterioles; 2b, venules; 3a, terminal arterial branches; 3b, terminal venous branches; 4a, main arterial branches; 4b, main venous branches; 5a, large arteries; 5b, large veins; 6a, aorta; 6b, venae cavae. Resistance values pertain to the total effect of one segment.

Fig. 14.10 Hydrodynamics of blood flow (E. O. Attinger)

Research Institute of the Presbyterian University of Pennsylvania Medical Center, Philadelphia, Pennsylvania

## Notes

1. Our Senseless Toil, Pt.II, p.14.
2. Austrian Patent No. 136214, applied for April 23, 1930, granted January 10, 1934.
3. Austrian Patent No. 134543, applied for August 12, 1931, granted August 25th, 1933.
4. Expert opinion dated 15 Apr. 1930, by Prof. Dr. Philipp Forchheimer, life-member of the Austrian Academy of Science, Vienna.
5. "Report Concerning The Preliminary Investigation Of Helical Pipes With Various Shapes of Pipe-Wall" ("Bericht iiber die Voruntersuchungen mit Wendelrohren mit verschiedener Wandform"), carried out at the Inst. of Hygiene, Stuttgart Univ. of Technology, Germany, by Prof. Dr. Ing. habil Franz Popel. February to March 1952.
6. Austrian Patent No. 196680, applied May 30, 1951, granted March 25, 1958, exactly 6 months before Viktor Schauberger died on 25 September that year.
7. French Patent No. 1.057.576, applied May 30th, 1952, granted October 28th, 1953. Brazilian Patent No. 43,431, granted in 1953. Portuguese Patent No. 29,729, granted in 1953.
8. Our Senseless Toil, Pt.II, p.34.
9. "Hydrodynamics of Blood Flow", by Dr. Ernst O. Attinger, Div. Biomedical Engineering, Univ. Virginia Medical Center, Charlottesville, VA 22901, USA. (I unfortunately failed to take note of the title and publisher. This was a paper written during Dr. Attinger's tenure of a special fellowship from the National Institute of Health (5-F3-GM-14037) and details research carried out at the Research Inst, Presbyterian Univ. Pennsylvania Medical Center, Univ. of Pennsylvania, Philadelphia, USA.
10. British United Patients Assoc. (BUPA) advert., Evening Standard, London, 31st January 1994.

## 11. HEART PERFORMANCE CALCULATIONS

The quantity of blood moved per beat = 0.1 litres  
= 100 cc

Since blood consists of about 90% water and 1 cc of water weighs 1 gram(g), assuming that the remaining blood constituents have a total weight of about 0.19 grams, then the weight of blood moved by the heart per beat =  $1.09\text{g} \times 100\text{cc}$

= 109g  
= 0.109 kg

At averagely 75 beats per minute the weight of blood moved per minute =  $75 \times 0.109\text{kg}$   
= 8.175kg

- the weight of blood moved in 1 hour =  $8.175\text{kg} \times 60\text{ minutes}$   
= 490.5kg  
= 0.4905 tonnes (t)

- the weight of blood moved in 24 hrs =  $0.4905\text{t} \times 24\text{ hrs}$   
= 11.772t

- the weight of blood moved in 1 year =  $11.772\text{t} \times 365\text{ days}$

= 4,296.78t.

The magnitude of a force is normally calculated in newtons. 1 newton (N) represents a force of 0.101972kg acting through a distance of 1 metre. 1 newton is also equal to an expenditure of energy of 1 joule or 1 watt per second. Therefore calculated in terms of newtons, it could be inferred that the heart expends sufficient energy annually to raise the above weight of 4,296.78 tonnes to a height of 1 metre.

As far as the energy of the heart is concerned, using the above figures, at 0.109kg per heartbeat energy required per heartbeat =  $0.109\text{kg/N}$  ( $N = 0.101972\text{ kg}$ )

= 1.06892088N

= 1.06892088 joules

= 1.06892088 watt-seconds

The heart would therefore appear to function at 1.07 watt-seconds.

# 15

## DRINKING WATER SUPPLY

### 15.1 The Consequences of Chlorination and Fluoridation

Water is the issue most crucial to all life on Earth. Water is the life-blood of our planet, the life-giving fluid in all organisms, plants, animals and human being alike, flowing as sap, lymph or blood; our very existence is therefore intimately connected with the quality of water available to us. It is vital for our own lives and those of our children that we should become seriously concerned not only for the health, vitality and quality of the water we drink, but also for its original source and the treatment it receives. Apart from our own consumption of it, this same water is also used to grow everything we eat. If we want to live in health and happiness, then the living entity - water - should be highly revered and the most sensitive care taken of it.

In the previous chapter we briefly mentioned the harmful effects of chlorination, but we need to examine the process and its ramifications more fully. Today the drinking water supplied to almost all the inhabitants of so-called civilised countries is chlorinated and sometimes even fluoridated. The purpose of this treatment is to sterilise the water, to free it of all noxious micro-organisms and pathogenic bacteria.

Present methods of water treatment and reticulation kill water, however, and bad water or wrongly treated water debilitates, degrades, degenerates and ultimately destroys those organisms constantly forced to drink it. Science, however, completely overlooks the

fact that water - as life-carrier - is itself alive and needs to be kept in this condition if it is to fulfill its naturally ordained function for, as Viktor Schauberger has stated:

Science views the blood-building and character-influencing UR-ORGANISM - 'WATER' merely as a chemical compound and provides millions of people with a liquid prepared from this -point of view, which is everything but healthy water.<sup>1</sup>

But what does modern, denaturised civilisation care, as long as it receives a suitably hygienised, clear liquid with which to shower, wash its dishes, clothes and cars? Once down the plug-hole, in company with all manner of toxic chemicals and detergents, all is comfortingly out of sight and out of mind. As proof of the efficacy of current disinfective practices and to justify their continuance, officialdom usually points out that such water-borne diseases as cholera and typhoid are virtually unknown in all countries where the water is chlorinated.

Thus reassured, the broad mass of the population blithely continues to bask in the luxury of apparently disease-free water in complete ignorance of the perils arising from its constant consumption, for what is never stated in official explanations is the cumulative effect this treatment of water has on the organisms forced to drink it. What people do not know is that, although the chlorination of drinking and household water-supplies ostensibly disinfects it and removes the threat of water-borne diseases, it does so to the detriment of the consumer.

In its function as water steriliser or disin-



In view of the fact that our body's water content amounts to 45 litres and that our daily consumption of water is about 2.4 litres, just consider the following:<sup>2</sup>

THE BLOOD PLASMA	————> (main blood component)	————> about 92% water
THE HUMAN FOETUS	————> (our growing physical vehicle)	————> about 90% water
THE BLOOD	————> (life-fluid & nutrient conveyor)	————> up to 90% water
THE HUMAN BRAIN CELLS	————> (intellect, creativity, behaviour)	————> are 85% water
THE KIDNEYS	————> (fluid processors & purifiers)	————> are 82% water
THE MUSCLES	————> (prime movers of the body)	————> average 75% water
THE BODY	————> (our abode on Earth)	————> is 71% water
THE LIVER	————> (metabolism regulator)	————> is 69% water
THE BONES	————> (structural support system)	————> are 22% water
THE BODY'S CELL-FLUIDS	————> (basis of growth & development)	————> are mainly water

fectant, chlorine eradicates all types of bacteria, beneficial and harmful alike, so that what arrives at the tap or faucet, while indeed free of every possible organism, is water that has been sterilised to death; in other words, a water-corpse. More importantly and more alarmingly, however, it also disinfects the blood (up to 90% water) or sap (ditto) and in doing so kills off or seriously weakens many of the immunity-enhancing micro-organisms living in the body of those organisms that continuously consume it.

This eventually impairs their immune systems to such a degree that they are no longer able to eject viruses, germs and cancer cells, to which the respective host-bodies ultimately fall victim. We therefore actually sterilise our blood when we drink chlorinated water, thereby readying ourselves for the onset of disease.

Of late there has been an alarming increase, not only in hitherto unknown diseases, but in all forms of sickness, cancer in particular. Even the appearance of other lethal afflictions such as AIDS would have come as no surprise to Viktor Schauburger, for apart from the other inevitable disturbances to the ecology and the environment occasioned by humanity's unthinking activities, as early as 1933 he foresaw all these unwholesome developments as the legitimate and inevitable consequence of the mistreatment and artificial pollution of water with chemical additives.

Just imagine what effect the constant drinking of dead or diseased water has on the blood and all the vital organs of the body.

What happens to the life-force essential for healthy growth?

And what are the effects of chlorination? Chlorine is not added to drinking water in vast quantities. Averagely it is administered at about 10 parts per million (ppm), (see fig. 5.1) providing always that the dispensing and metering equipment is properly maintained and monitored. Malfunction, however, can never be ruled out, with the result that over-chlorination may occur more frequently than we are led to believe. [In the 1995 drought, thousands of residents of Cornwall in south-west England got ill, when the volume of water in the supplies was insufficient to 'water down' these chemicals 'safely'.]

According to Nobel-prizewinner Prof. Otto Warburg, later confirmed by Nobel-prizewinner Prof. Gerhard Domagk, cancer cells were formed as a result of a deficiency of oxygen, which produces a reversal in the metabolism whereby the nutritive substances are fermented by the cells into lactic acid. This provides the cell with additional energy to grow more rapidly and to divide faster than other cells, eventually developing into a cancer cell proper, oxygen shortage and over-acidity being the characteristic hallmarks of cancer cells.<sup>4</sup>

There is a further noxious characteristic of chlorine worthy of note. Because even a small ray of light suffices to make it explode, chlorine gas has to be mixed with water in darkness. It could therefore be reasonably assumed that even on the minutest scale, explosion will occur when the capillaries immediately under the skin are exposed to sunlight, causing their partial rupture. Chlorine-dioxide

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To give reader an idea of what 10ppm entails, the cube below measures 100cm x 100cm x 100cm. The content of this cube is therefore 1,000,000cm<sup>3</sup>. The minute cube at the upper left hand corner of the cube at (A) is equal to 1 ppm and could be likened to a cube of sugar in a metre-cube box. Relative to the total volume of drinking water the amount of chlorine added to it amounts to 10 such minute cubes as shown at (B). This seems hardly worth worrying about except that, as we learnt in chapter 9 in connection with Prof. Jacques Benveniste's research into the efficacy of homeopathic medicines, the smaller the physical quantity, the greater the resultant effect. Just to complete the description of the diagram, the 3 1/2 rows of cubes at (C) represent the amount of carbon-dioxide presently in the atmosphere, which as a result of its rise from 290ppm early this century to its current 355ppm level, is producing unwelcome effects in re global climate, all of which further underscores how minimal causes produce large effects. Used in chemical warfare chlorine is poisonous gas. It has a greenish-yellow colour and reacts with the

majority of organic compounds. In the process it replaces hydrogen, one of the key elements of the water molecule and present in all carbohydrates and fats, both of which are essential to the metabolism in all organic life. One effect of this hydrogen replacement may well be the removal of the hydrogen atoms in the fatty substances surrounding and enclosing the cells, the cell-walls, which act as a dielectric membrane and conserve and separate the bioelectric charges responsible for the cells' correct function.

On the other hand, it may also create certain quantities of hydrochloric acid in the blood itself, which as a digestive juice normally resides safely confined within the walls of the stomach, and as a result adds to the overall acidity of the blood, thereby reducing the blood-pH<sup>(scientific)</sup> to levels below the normal level of 7. As a powerful oxidant it also accelerates the metabolic processes of oxidation, on the one hand creating additional heat and on the other consuming oxygen destined for other purposes, and if these occur above the naturally prescribed levels, in most organisms it leads to premature aging.

100cm x 100cm x 100 cm = 1 cubic metre (nr),

A volume measuring:

or = 1,000,000 cm<sup>3</sup>

In relation to such a volume, therefore,

(A) 1cc (1 ppm) = 1,000,000th of a m<sup>3</sup>.

(B) 10 ppm is the amount of chlorine and/or chlorine dioxide generally used for the so-called "purification" of drinking water.

(C) 355 ppm is the amount of carbon dioxide (CO<sub>2</sub>) presently in the atmosphere, which, with water vapour, is a co-contributor to the "greenhouse effect". In the late 19th century, the amount of CO<sub>2</sub> in the atmosphere was circa 290 ppm, considered to be the normal, natural level.

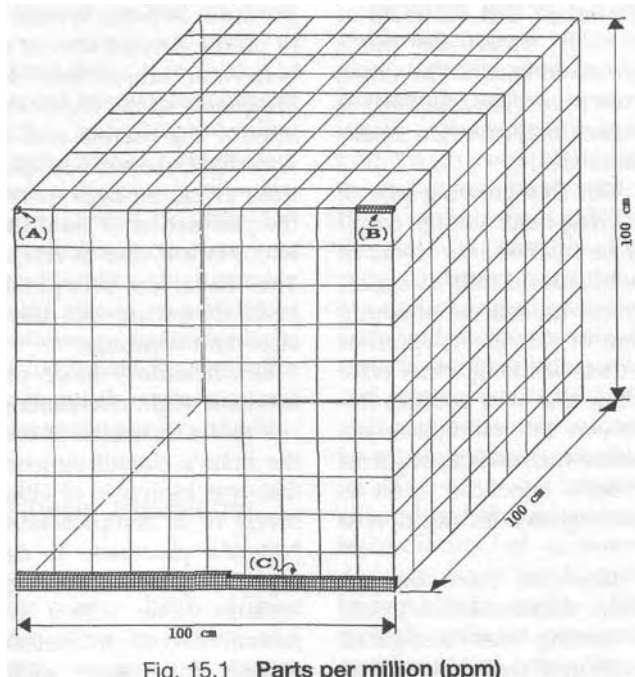


Fig. 15.1 Parts per million (ppm)

(ClO<sub>2</sub>) is also used for water purification and, while it is soluble in cold water, it begins to decompose as the water warms up and at roughly +90°C it forms chloric(VII) acid which similarly explodes and oxidises strongly. In biochemistry and biology it is employed for the decomposition of organic matter for analytical purposes.

What more needs to be said, apart from the fact that all these abnormal oxidising processes cause the dislocation of the natural energy-flows in the body, which in turn raise its general temperature, thus placing it in a disease-prone condition. Disease after all is the way that Nature removes all organisms that are no longer healthy or viable in her scheme of things and which stand in the path of evolutionary progress. In confirmation of chlorine's disease-causing function, a recent study found that in water purification it "produces by-products that cause 18% of rectal cancers and 9% of bladder cancers."<sup>5</sup>

Artificial fluoridation of the water supplies is another pernicious process with equally alarming consequences for the drinker. There are two different forms of fluoride, one of which, calcium fluoride, is naturally occurring. Where present in the groundwater or wells it has been observed that the teeth of those who drink such water are much stronger and less prone to caries. The other, sodium fluoride is not found naturally and is a poisonous by-product of aluminium smelting and used in insecticides.

But what to do with this growing pile of poison without incurring huge storage costs? It could not merely be flushed into rivers or used in agriculture, because it kills livestock, wildlife, fish and crops. Indeed the offspring of the 3rd generation of rats given 1ppm of sodium fluoride in their drinking water were crippled at birth<sup>6</sup>. How and why sodium fluoride ever found its way into toothpaste is a mystery. Perhaps some mistaken bureaucrat thought it had the same beneficial effect as calcium fluoride and required its addition to drinking water.

Many children, however, have become innocent victims of this disastrous confusion, their bright smiles having been disfigured with seriously discoloured teeth, as well as

increased brittleness of their bones. In a recent New Jersey Department of Health study fluoridation has been linked to a rare form of bone cancer known as osteosarcoma<sup>7</sup>. This study showed that, in contrast to non-fluoridated municipalities, the incidence of osteosarcoma was 50% higher in males under 20, an almost seven-fold increase in young males between the ages of 10 and 19 occurring in the three most affected communities.

But this is not where it all ends. Ultimately all these malpractices not only have the direst consequences for the body, but also for its more immaterial attributes and here we shall quote Viktor Schauberger once more:

A particular inner temperature produces a certain physical form which in turn generates the special kind of immaterial energy we encounter in a more or less highly developed form as character. Hence the old saying 'Mens sana in corpore sano' (a healthy mind in a healthy body). If the composition of the basic substances of the body should in any way be altered, then the metabolic basis for the further growth of the body must not only change, but its spiritual and intellectual growth and further development as well.<sup>8</sup>

Viktor saw the proper physical formation of the brain as being crucial to what it was able to produce in the way of concepts, ideas and behaviour, ethical and otherwise; the lower the quality of the physical structure, the more inferior the morals and ethics. In the same way that the narrowly spaced annual rings of trees produced high-quality, resonant timber, the production of good thoughts in harmony with Nature, and in consequence good character traits, was only possible with a well and healthily-grown and developed brain with close-knit windings.

Unwholesome food, poor water and the resultant slight overheating, in his view, gave rise to the formation of coarse convolutions in the brain's overall structure, creating a brain that was incapable of either functioning intuitively or of comprehending the subtleties of Nature's processes. It degenerated into an organ able only to think logically, but never biologically, never with a living logic aware of natural energetic interrelations and interdependencies. In a sense, such a brain could be

likened to a poorly designed musical instrument constructed of inferior materials and thus unable to create truly harmonious sounds affecting the world harmoniously. There is plenty of evidence in support of this, for daily we are made aware of the rise in mental afflictions, depression, dyslexia, irrational and brutal behaviour, and hyperactivity to name a few, which are affecting more and more people at an increasingly younger age.

The water we drink and food we eat are by no means the sole cause, but in the light of all this precautionary evidence we should at the very least ensure that what we eat and drink is of the highest possible quality. Moreover, we should call the responsible authorities to account for their misdemeanours, even though these may have been unintentional, for it is we, particularly the poor, and not they, who finally have to pay the price in suffering and misery for their inaction. We should refuse to continue to be forced to drink water as presently prepared, for in drinking chlorinated and fluoridated water not only do we harm ourselves physically and mentally, but we also pass on a terrible genetic legacy to our children. A thorough investigation and highly publicised public inquiry into present methods of water purification should be put in hand immediately by an independent body of competent, unintimidatable individuals. These should be selected from all branches of science and medicine, including so-called alternative practitioners, whose awareness in some areas far exceeds those of orthodox disciplines. Should its publicised findings recommend the immediate cessation of current practices in water purification, then neither the government nor the respective authorities will be able to continue to brainwash the population and will be forced by the ballot box to take action and put the necessary and urgent remedial measures in hand forthwith.

## 15.2 The Springwater Producing Device

During the early 1930s Viktor Schaubberger was active in writing and publication, in river engineering, power

generation and forestry. However, he felt so strongly about the dangers associated with contemporary systems of water treatment and the suffering they caused, that he designed a device which both purified water, and also raised it to mountain-spring quality. In 1934 he applied for patents<sup>9</sup> for this apparatus, which produced pure, high-grade, spring-quality drinking water (fig. 15.2 see also box on page following). This was his first prototype for the artificial production of high quality drinking water. This crude arrangement was his first attempt to combine the necessary elements, so its construction was cumbersome compared to the elegance of later designs.

In Viktor Schaubberger's understanding of the deep subterranean cycle of water (see chapter 9, fig. 9.1, "The Full Hydrological Cycle" and figure 9.1, p. 119), he considered the Earth's rapidly depleting deposits of coal and oil, which today we stupidly plunder and squander by combusting them as fuel, to be the vital sources of carbonate upon which the whole natural production of carbonic acid depends and without which there is no good water and therefore no healthy growth.

Although Walter Schaubberger achieved a stable solution of water and carbon-dioxide using a partial vacuum in conjunction with a hyperbolic vortex, because of the way in which carbon-dioxide is infused into water under high pressure in contemporary chemical and industrial processes, such a combination cannot be stabilised and is only theoretically possible. Under such technically contrived conditions the carbon-dioxide can only be constrained in a dissolved state under constant pressure, which is why there is an immediate evolution of bubbles and gases when bottles of soft drinks or aerated mineral water are opened. Incidentally, by inhaling these vapours the reader will get an idea of what 'chokedamp' is, and its effect. Just because we cannot produce a stable solution of carbon-dioxide, however, does not mean that Nature cannot achieve it. In her acts of creation, Nature operates differently, without pressure and heat, but in cool implosive ways. She employs attracting

In the apparatus on the next page surface water, i.e. the most available form of water, is introduced into a container A, where it is irradiated by a mercury-vapour lamp, which kills off many of the harmful bacteria, and where the necessary cooling process also begins. The water then flows down to the outlet m below a mixing vessel C, where, under a pressure of half an atmosphere, this largely mineral-deficient water is mixed drop by drop with the salts and other minerals necessary to build up a high quality water. From here it proceeds to a vessel D, where it is sprayed through perforations in a spiral pipe n from the outside inwards, at the same time that carbonated water is sprayed from a similar perforated tube k, but from the inside outwards. A mixing between the two types of water occurs, gradually blending them, and they fall through what appears to be a mesh screen (not described in the patent document), from where, now as a combined liquid, they move up through a series of tulip-shaped glass vessels E.

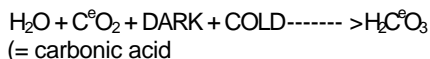
As this liquid rises, the carbon-dioxide (also known as CO<sub>2</sub> or carbonic acid gas) in the water accumulates at the top of each tulip, as shown in the larger detail inset, the amount progressively diminishing, the higher the tulip on the column. The greater part of the water, however, first moves upwards around the outer bowl of the tulip q and then downwards around the inner bowl. Upon reaching the central core, it then moves upwards again. As the water pressure gradually builds, the carbon-dioxide trapped in the upper part, is forced upwards through the small tube above the tulip and back into the main body of water.

By the time the water reaches the top of the tulip column, there is no free carbon-dioxide left. All of it has been absorbed into the water in the form of carbonic acid (H<sub>2</sub>CO<sub>3</sub>). Whether we are concerned with H<sub>2</sub>CO<sub>3</sub> or (H<sub>2</sub>O + CO<sub>2</sub>) as discrete entities is largely dependent on temperature and pressure. Somewhere in this series of tulips, laminates of silver and gold are attached, (their actual position is not described), which create a small electrostatic charge that ionises the various particles in the water, enhancing the combination and

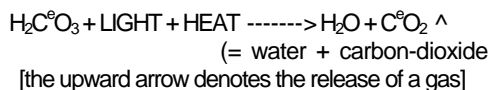
recombination of the various minerals and salts. From the top of the tulip-column, the water then flows into a silver-lined<sup>10</sup> cooling vessel F, containing a large auger, i.e. an archimedean screw, which slowly rotates in the opposite direction to its slope, thus encouraging the water to remain there to be cooled by the cooling coils mounted on the exterior of this well-insulated chamber.

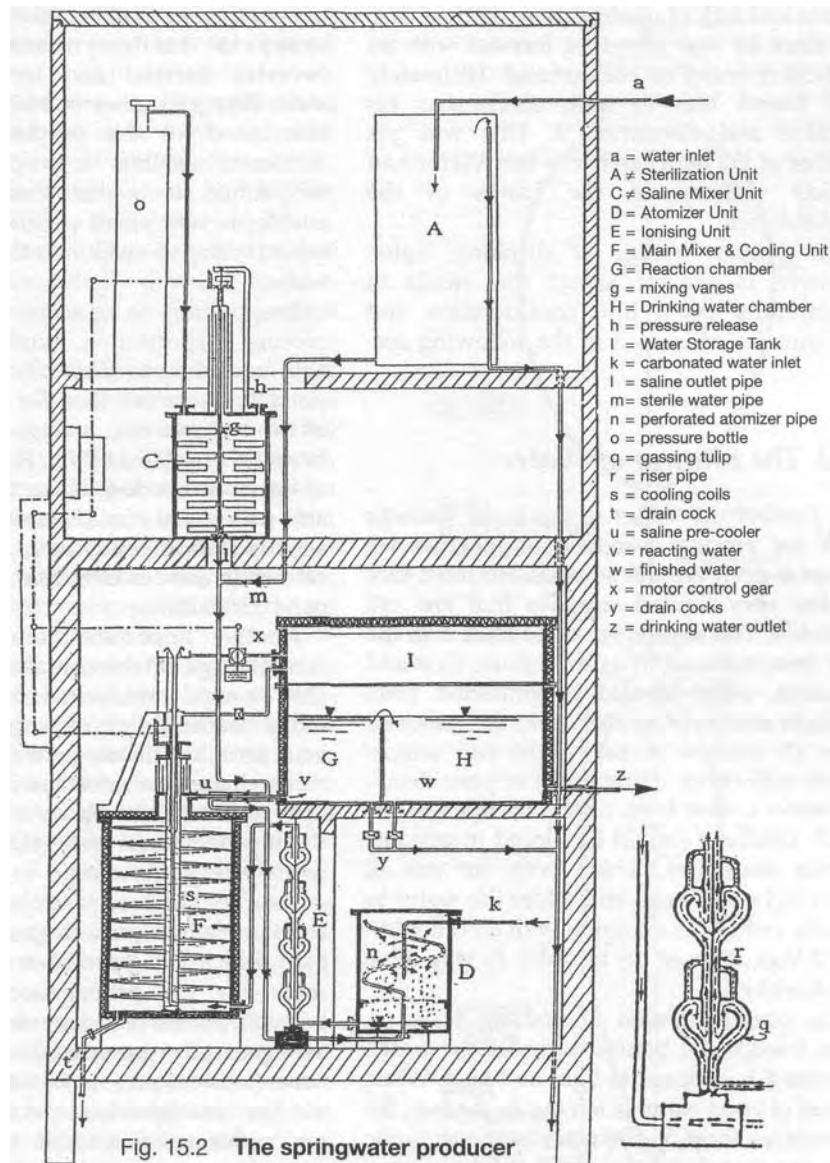
Moving upwards from this vessel, the water then enters a large, insulated sleeve-pipe u, through which the pipe containing the descending saline and mineral solution passes, pre-cooling it on its way to the spray chamber D. From here the prepared water passes into the final chamber /, which is divided into two compartments. The first G (left-hand side) allows certain residual reactions to take place, such as the interaction between the content of carbon-dioxide and oxygen, before finally overflowing into the second compartment H, when it is in a condition suitable for drinking. From here it passes to the outlet z, ready for consumption.

In this process carbon-dioxide is bound with the water in stable form as occurs in Nature, i.e. by processes of cooling and densation through which the carbon-dioxide is converted into carbonic acid. In its simplest representation carbonic acid is a compound of the three elements of carbone (C<sup>e</sup>), oxygen (O) and hydrogen (H) in the form of water (H<sub>2</sub>O) plus carbon-dioxide (C<sup>e</sup>O<sub>2</sub>), and is produced naturally in the coolness and darkness of the Earth. According to the legitimate interpretation of chemical formulae, the combination of these elements should produce the following result:



which is the very foundation and the most important ingredient of high-quality, mountain-spring water, the other form of energy that makes all life on this planet possible. Conversely





forces of suction in lieu of life-destroying forces of pressure.

Despite its gross construction, with this apparatus Viktor Schauberger was able to produce a very high-grade spring water from any reasonably good quality, i.e. unpolluted, surface water. Pressing on with his research, in the late 1930s and early 1940s he worked on the design for another device, far more compact than the previous one. This one was egg-shaped and, while it really

belongs to this chapter on drinking water, because the principles on which it functions are similar to those of his other apparatuses, its discussion will be reserved to chapter 21 on Implosion. With it, however, he helped many people stricken with cancer. By providing them with very high-quality water he was able to achieve remission in quite a large measure. However, as is frequently the case, he came up against the established authorities, who accused him of charla-

tanism and lack of qualifications to treat cancer, since he was merely a forester with no medical training or background. Ultimately they forced him to quit, confiscated his machine and destroyed it. This was yet another of the many setbacks that Viktor had already suffered at the hands of the Establishment.

The proper storage of drinking water, however, is another aspect that needs to be carefully taken into consideration and will now be addressed in the following section.

### 15.3 The Storage of Water

Whether our water is produced through the process described or whether we obtain it from natural sources, we must care for the very limited supplies that are still available. This means we must treat it in the way demonstrated to us by Nature. First and foremost, water should be protected from sunlight and kept in the dark, far removed from all sources of heat, light and atmospheric influences. (How much of your drinking water comes from reservoirs open to the Sun?) Ideally it should be placed in opaque, porous containers, which both cut out all direct light and heat, and allow the water to breathe (which, in common with all other living things, it must do in order to stay alive and healthy).

The present system of bottling water in clear, transparent bottles degrades the water, because it is exposed to light and heat. When a glass of good water is left out in the Sun, little bubbles form on the glass as the carbonic acid, the principle ingredient of good water, is converted into CO<sub>2</sub> through increased temperature and light. Like wine, water needs to be kept in the dark in an opaque bottle sealed with a breathing cork. It is not without reason that good wine is matured in wooden casks.

In terms of what we can achieve personally, we should at all times ensure that our storage vessels, bottles, tanks, etc., are thoroughly insulated so that the contained water is maintained at the coolest

temperature possible. The materials most suited to this are natural stone, timber (wooden barrels) and terracotta. Perhaps more than any other material, terracotta has been used for this purpose for millennia. Terracotta exhibits a porosity particularly well-suited to water storage, because it enables a very small percentage of the contained water to evaporate through the vessel walls.

Evaporation is always associated with cooling (vaporisation, however, with heat) and, according to Walter Schauburger, if the porosity is correct, then for every 600th part of the contents evaporated, the contents will be cooled by 1°C (1.8°F). Therefore, if such a vessel is positioned where there is a reasonable movement of air, the water will cool and approach its anomaly point, its state of highest health and 'indifference' at a temperature of +4°C (39.2°).

Another important storage factor is the actual shape of the container itself. Most of the storage containers commonly in use today are cubic or rectangular volumes of one form or another, or cylinders. While these shapes are most easily and economically produced by today's technology, they do impede natural water circulation and promote water suffocation.

Due to their rectangular shape and/or right-angled corners, stagnant zones are created which can provide a suitable environment for the propagation of pathogenic bacteria. Moreover, since the materials used are generally galvanised iron, fibre glass, concrete, steel, etc., i.e. all impervious materials, the contained water is unable to breathe and suffocates as a result. In this debilitated state or as a water-cadaver, it quickly becomes diseased and will require further disinfection.

Taking Viktor Schauburger's maxim *Comprehend and Copy Nature!* as our guide, we should therefore use the shapes that Nature herself selects to contain, guard and maintain life, i.e. eggs and their derivations. The cubes and cylinders mentioned above have no place in Nature's scheme of things. To store her vital fluids and other materials wise Nature chose eggs and

elongated egg-shapes such as grains and seeds, because these produce the optimal results.

It is evident that the ancient Egyptians and Greeks, renowned for their logic and constructional ability, were well aware of this, because they stored their grains and liquids (oils, wines, etc.) in terracotta amphorae, sealed with beeswax. This despite the fact that the shape was wholly unsuited to compact and efficient storage in terms of space and ease of handling.

It is obvious that the selection of this form over any other was intentional and the result of certain knowledge of the long-term storage properties of such shapes. In many amphorae that have surfaced in archeological excavations over the last 100 years or so, grains of wheat have been found that were still viable and, even after storage over 2,000 years, germinated when planted.

Compared with cubes and cylinders, as shown in fig. 15.3 these shapes have no stagnant zones, no right-angled corners that inhibit flowing movement. By placing these terracotta vessels in shaded areas, exposed to air movement, the evaporative cooling effect will be significantly enhanced. Since all natural movement of liquids and gases is triggered by differences in temperature, so too inside the egg-shaped storage vessel, cyclical, spiral, vitalising movement of the water will be induced.

As we have seen, movement is an expression of energy and energy is synonymous with life. The external evaporation causes cooling of the outer walls and the water in their immediate vicinity. Being cooler and therefore denser, this water becomes specifically heavier and sinks down along the walls towards the bottom, at the same time forcing the water there to rise up the centre and move towards the outside walls. Continual repetition of this process results in the constant circulation and cooling of the contents.

With all existing installations for water storage, the main problem is that of exposure to light and heat. Where possible, all above-ground water tanks, whether of galvanised

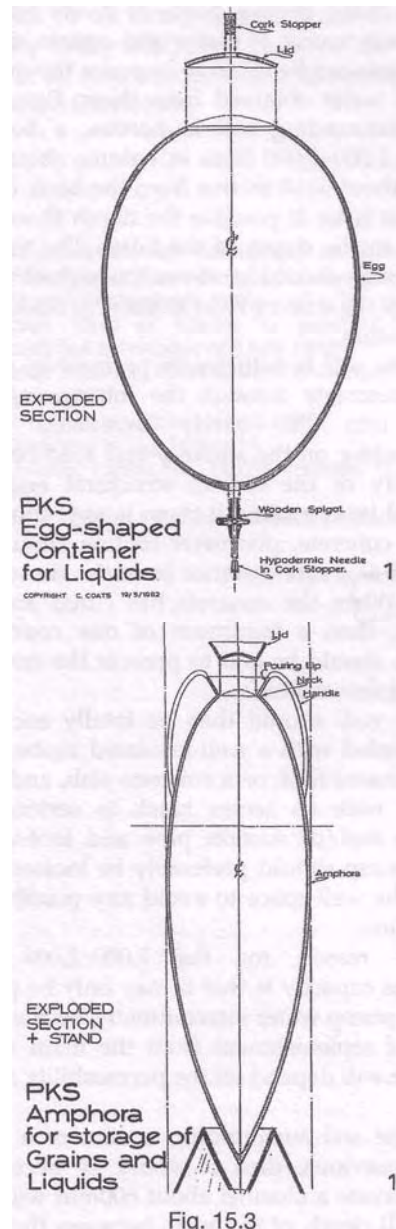


Fig. 15.3

iron, fibre-glass or concrete, should be insulated on all external surfaces by applying sprayed foam or an equivalent thermal barrier, to a minimum thickness of 75mm. If not already white or of a light, heat-reflecting colour, then they should be so painted. For tanks set into the ground, only the top surface need be insulated and painted white.



For many people, dams or rivers provide the main source of water and certain simple measures can be taken to improve the quality of the water obtained from them. Providing the surrounding soil is porous, a hole of about 1,000-2,000 litres in volume should be dug, about 5-10 metres from the bank of the dam or river. If possible the depth should be equal to the depth of the latter. The tops of such wells should be above the highest water level of the dam or river to prevent flood contamination.

If the soil is sufficiently permeable, water will percolate through the intervening soil and into the newly excavated well. Depending on the stability and load-bearing capacity of the soil (a structural engineer should be consulted if there is any doubt), a small concrete, perimeter footing should be placed at a safe distance from the rim of the well. When the concrete has cured and set firmly, then a minimum of one course of blocks should be laid to prevent the entry of any surface water.

The well should then be totally enclosed and sealed with a well-insulated timber and sheet-metal roof, or a concrete slab, and provided with an access hatch to service the pump and/or suction pipe and foot-valve. The pump should preferably be located outside the well-space to avoid any possible oil pollution.

The reason for the 1,000-2,000 litre storage capacity is that it may only be possible to pump water intermittently, because the rate of replenishment from the main water source will depend on the permeability of the soil.

If the soil surrounding a dam or a river is impervious, then it would be necessary to excavate a channel about 600mm wide, to the full depth of the well, between the well and where the water percolates freely, or the main water body. The lower part of this and the bottom of the shaft itself should be filled with clean, quartz sand to a depth of about 600mm and the upper part back-filled with the excavated material and compacted. As the water percolates through either the existing soil or the sand, most suspended matter will be filtered out. Furthermore, because the

water reaches the well from the lowest level of the river or dam, it will be obtained at the coolest possible temperature, and less likely to harbour aggressively harmful, pathogenic bacteria, which tend to populate the upper, warmer and more highly-oxygenated strata of the main water body.

In the early 1970s I built such a well on my own property at Montville in Queensland which produced an extremely clear, clean, odourless and good tasting water. The people who have since bought the property report that the quality and quantity of water has not changed. It is advisable to have such water tested for quality, purity and any possible contaminants, pesticides, etc., by the competent authorities.

River water is generally far richer than tank water (rainwater) in terms of its mineral, salt and trace-element content. In most cases it will be necessary to supplement the mineral content of rainwater, if this is the only source of drinking water, to prevent the extraction of minerals and salts from the drinker's body. Here the suspension of an artificial-fibre sack (rot-proof) containing the dust of crushed basalt or other igneous rock used for road building (commonly known as 'crusher dust' - see chapter 19) would do much to enhance the quality of the tank water, because it will absorb those elements it requires to become mature.

However, before adding any crusher dust to the water, it would be again advisable to test the resulting change in the quality by analysing the difference between two samples of tank water, one with crusher-dust added and one without, as a control. Both samples should then be placed in a cool, dark place and left for at least a week before an analysis of the mineral content and bacterial purity is carried out. This should be done by a suitably qualified specialist.

These ideas about water will be regarded by many as controversial, but let us hope they have given you much food for thought and action. Water should never be viewed or treated as an inert and lifeless liquid for, in so doing we debase ourselves, and the rest of life on this planet, ignorance of such magnitude will demand of us an awesome penalty.

Our life, however, is not merely supported by water, but also largely by the forest. In the following chapter we shall examine the all-encompassing service the tree so unselfishly

extends to all living things. It too has been equally badly mistreated through our ignorance of its vital functions and its necessity for a healthy, fruitful life.

### Notes

1. Our Senseless Toil, Pt.II, p.6.
2. From Water - The Mirror of Science by K.S. Davis & J.A. Day: Heinemann Educ.Books, London, 1964. Biology by C.A. Villee, E.P. Solomon & P.W. Davis: W.B. Saunders, Philadelphia, U.S.A.: ISBN 4-8337-0277-0.
3. pH is the measure of hydrogen-ion concentration in a given substance and indicates the degree of acidity or alkalinity. Like human blood, with a pH of 7 pure water is neutral. Above pH 7 alkalinity increases; below it, acidity increases.
4. "The Mechanical Generation of Life-Force" ("Maschinelle Erzeugung der Lebenskraft") by Viktor Schauberg in Implosion No.57.
5. Amer. Jour. of Health as reported in The Australian newspaper of 2 July 1992.
6. Letter from J.E. Allen to the The Gympie Times, 9 March 1990.
7. Acres USA magazine, March 1993.
8. Our Senseless Toil, Pt.II, p.17.
9. Austrian Patent No. 142032, granted 11th June 1935.
10. Silver also has a natural anti-bacterial function.



# 16

## TREES AND LIGHT

### 16.2 The Entity 'Tree'

One of the problems seriously affecting real progress today is the emphasis on over-specialisation, particularly in the sphere of the Earth Sciences for which an overview is absolutely essential. All the research work carried out presently and historically is almost totally irrelevant, if the subtle interdependencies cannot be perceived and the knowledge applied and combined with research in other spheres. Preoccupation with analysis inhibits perception of the whole and prevents us from drawing conclusions we might otherwise draw were we at the same time more general in our approach.

While the next three chapters describe the interaction between trees and light, the part that water plays in the growth of vegetation remains a dominant feature of our discussion. Nature, after all, knows no boundaries, and any discussion of natural processes inevitably involves a number of interdependent aspects which should always jointly be taken into account.

In contrast to currently held doctrines, Nature is founded far more on cooperation than on competition, because it is only through harmonious interplay that physical formation can occur, that things can come together and structures can be built up. Without attraction between two or more atoms there would be no water, no plants, no chemical compounds, no living substances at all. In essence attraction is a form of love, so that in the polygamous relationship between

two hydrogen atoms and one oxygen atom, their mutual attraction and interaction gives birth to the marvel of water.

Because of this attraction another entity is created, something greater than its component parts. In the absence of attraction nothing would have happened; if the hydrogen atoms were competitively oriented towards the oxygen atoms there would be no synthesis - and no life. While there are many other examples of symbiosis, Robert Auguros and George Stanciu in their recent book *The New Biology*<sup>1</sup>, which elaborates the findings of their research into the cooperation between species, found that there was a far higher level of cooperation in Nature than we have hitherto been led to believe.

One of their graphic examples is the tree in fig. 16.1, which is inhabited simultaneously by several different species of bird, whose areas of activity really do not clash or overlap, but are all harmoniously integrated into the overall form of the tree. Here, at least, even if on a very small scale, it is evident that, instead of competition and survival of the fittest, wise Nature has developed an evolutive system of increasing diversity in which there is a place for everything. It would seem quite illogical and unintelligent to create so many different life-forms and have no room for them to exist.

The prevailing emphasis in biological education is that Nature is competitive, which blinds us to her other realities. In human beings the necessity to compete has often led to deep-seated feelings of inadequacy and inferiority, which frequently seek compensa-

tion in material acquisition. We are taught that we live in a hard, cold, competitive world, a world that has largely become so because we have made it so, although this does not necessarily represent natural reality.

For our own survival, the whole concept of the primacy of competition needs to be re-examined. It should be restricted to one's own performance in relation to the outer world; by developing one's talents, and by exercising them for the benefit of others. If we are going to prevent our own extinction, we must abandon this divisive, competitive ideology and return to a more centripetally (integrative) organic rather than a centrifugally (disintegrative) mechanistic way of living, limiting quantity in favour of increasing quality, and in particular the quality of giving.

What is an exchange? As a completed transaction, an exchange can only then take place when 'giving' and 'taking' come together in the proper and appropriate

amounts. Without giving, there is no taking. If evolution is to continue its forward unfoldment, the giving must be greater both in measure and quality than the taking, to ensure a surplus of creative potential energy, without which no manifestations can occur. There is a contradiction here for, generally speaking, when the amount or quantity of a substance or energy is increased, one does not necessarily expect its quality to grow in the same measure, since quantity  $\times$  quality = unity. However, as we have seen, the supply of essentially creative energy, emanating as it does from other dimensions, is not necessarily limited by the Conservation of Energy Law, and thus in this instance there is no reason why quantity should not increase in step with quality.

In this instance, however, measure is related to an intangible magnitude, a concentrated outpouring of love or giving (or information). One learns (intake or uptake of information) in order to disseminate what has been learned that is considered desirable or

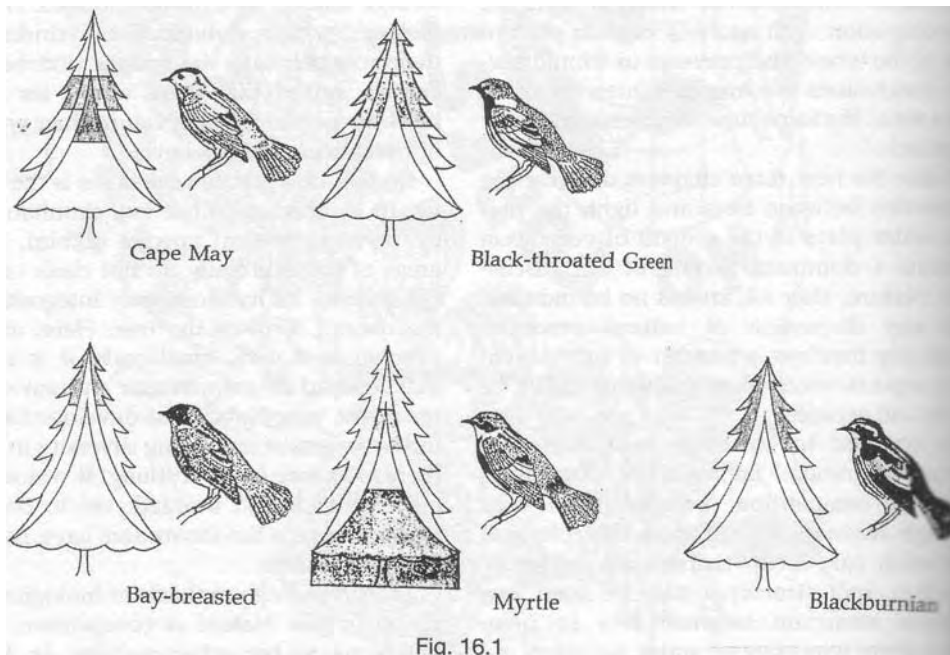
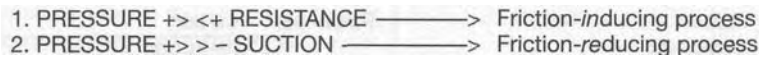


Fig. 16.1

Derived from a classic study by ecologist Robert MacArthur, this diagram illustrates how five species of isara similar in size and shape, feed on bud worms in the same spruce trees. They avoid competition by occupying s< different niches. The shaded areas indicate where each species spends more than half its time. The birds a\* different methods of hunting. This pattern of noncompetition is typical of naturally coexisting species.

Clearly the processes of suction and pressure need to be examined. No beneficial, natural exchange can take place solely under conditions of pressure. The effects of pressure (centrifugal thinking) and suction (centripetal thinking) can be explained with two simple diagrams.



as a higher synthesis. As is the case with the development of juvenile into mature water, without this 'taking' one would not be in a position to 'give'. The countless forms of manifestation in Nature and evolution could therefore be construed as the material product of open, energetic, spiritual syntheses of 'giving and taking'.

As co-aspect of competition, the effects of pressure should be considered in the mechanics of an exchange. Pressure is the exertion of an unwanted force by one system on another unwilling to receive it. As an immediate reaction, resistance, the affected system will close off. This means that the system exposed to pressure will take to itself neither the information, nor the nature, nor the impulse of the pressurising system. All possible means of access are blocked and only under excessive coercion does the second system submit to the will of the first.

Friction is the inevitable consequence. If there are weak points or cracks in the system placed under pressure then, under certain circumstances it can be split apart or disintegrated, leading to its total destruction. This is a completely unnatural, mechanical process which in no way corresponds to natural processes of association and combination. Everywhere today we can observe the effects of such inhuman, technological methods. The whole phenomenon represents the worst aspects of a closed system.

However, if this process takes place under natural conditions, then resistance, viewed as a necessary counterforce to suction, should not be interpreted as an obstacle to progress, but rather as a catalyst which moderates and alters the direction and quality of movement, building up life in a new way.

Suction, on the other hand, evolves through the interaction of the forces of attraction between two complementary polarities,

and represents more, qualitatively speaking, than friction does as a force. A sucking system is first and foremost an open system. It opens itself in order to receive. It attracts a second system to itself, a system that wants to be drawn in.

With suction there is no friction or resistance. On the contrary, there is only the desire of two attracting forces to combine, which doubles the attracting energies and accelerates their coming together. It is in this way that Nature works, for all natural organisms must be open systems to be able to interact with the rest of life. All life is created out of eggs and orifices, or enclosures and openings, whose porous substance and structure permits the diffusion and passage of life energies.

As we have seen, water is created by the coming together of molecular hydrogen and oxygen in the regions below the surface of the Earth. It is the basis for the growth and development of all life-giving and life-carrying fluids such as blood, lymph, sap and milk. As such the development of tree is therefore closely connected to the evolution of water. Every living system is a water-column or container of the most unique kind.

The life history of a tree is also the life history of water. Trees are the highest and noblest plant form, whose giving is universal and unconditional. They should be an example for us to follow, for they are to the vegetable kingdom as human beings are to the animal kingdom. Trees, however, are not wholly like us, but they are autonomous; they do not need us to survive, but we need them. Through the process of photosynthesis they breathe out the oxygen we need to exist and in return, as we breathe out, we contribute to the pool of carbon-dioxide they require. The table - fig. 16.2 - further exemplifies this interdependent activity.

AN ANIMAL is:	A VEGETABLE is:
An apparatus of combustion or oxidation	An apparatus of reduction or deoxidation
Possesses the faculty of locomotion	Is fixed
Burns carbon	Reduces carbon
hydrogen	hydrogen
ammonium	ammonium
Exhales carbonic acid	Fixes carbonic acid
or gives off water	water
oxide of ammonium	nitrogen
nitrogen	Produces oxygen
Consumes oxygen	neutralised nitrogenous matters
neutralised nitrogenous matters	fatty matters
fatty matters	starchy matters, gum and sugar
starchy matters, gum and sugar	
Produces heat	Absorbs heat
electricity	Abstracts electricity
Restores its elements to air and earth	Derives its elements from air and earth
Transforms organised into mineral matters.	Transforms mineral into organised matters

From "Design in Nature" by J. Bell Pettigrew, Longman Green & Co, 1908, p. 671

Fig. 16.2 The Respiration of Plants and Animals

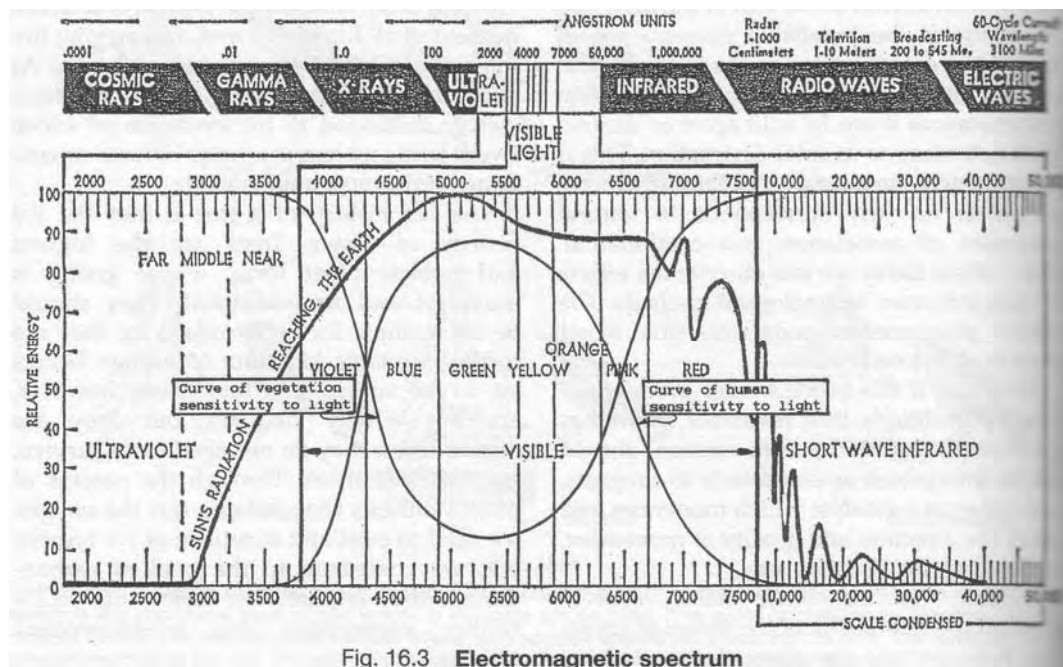
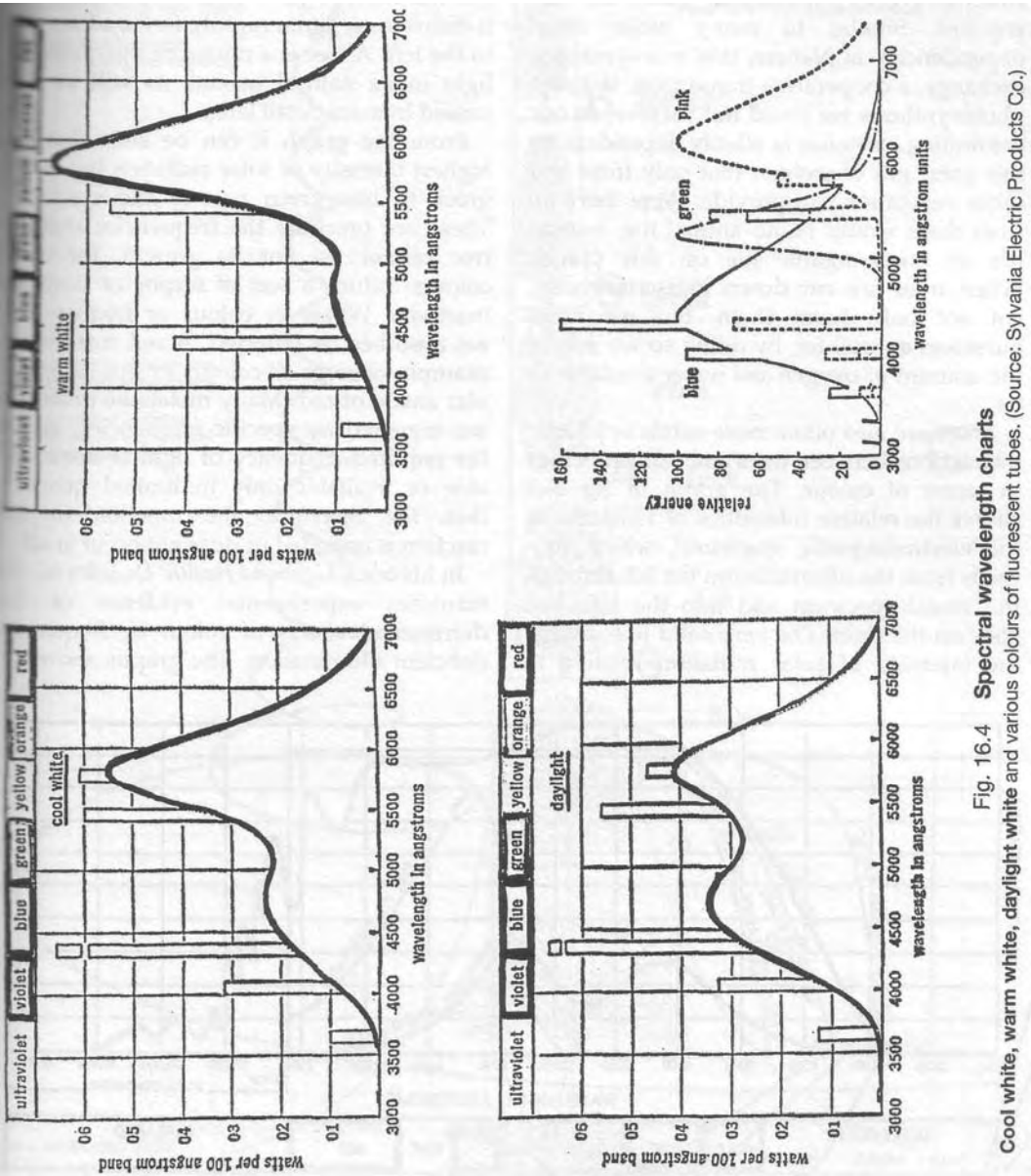


Fig. 16.3 Electromagnetic spectrum





Of the total amount of oxygen they produce by photosynthesis, 60% is released and the remaining 40% is used by the tree or plant itself during the night to produce cool, structure-creating oxidations which the tree requires. Similar to many other interdependencies in Nature, this is a symbiotic exchange, a cooperative transaction. Without photosynthesis we could not survive, so our continuing existence is wholly dependent on this great gift of oxygen that only trees and other vegetation can provide. Were there no trees there would be no animal life, human life or micro-organic life on this planet. When trees are cut down indiscriminately, we not only harm them, but we harm ourselves as well for, by doing so we reduce the amount of oxygen and water available to us.

There are also other more subtle symbiotic interactions between trees and human beings in terms of colour. The graph in fig. 16.3 shows the relative intensities of radiation in the electromagnetic spectrum<sup>2</sup>, which proceeds from the ultraviolet on the left through the visual spectrum and into the infra-red zone on the right. The very solid line depicts the intensity of solar radiation relative to

frequency or to the various categories of colour.

In the visible part of the spectrum there is a very high level in the green and, to the right, still has fairly high levels in the red, whereas it drops away quite rapidly in the ultraviolet to the left. A tree is a mirror of the quality or light in its natural habitat, as will be discussed in more detail later.

From the graph it can be seen that the highest intensity of solar radiation lies in the green to blue-green part of the spectrum. These are precisely the frequencies that the tree cannot use for its growth, for these colours induce a sort of torpor or dormant inactivity. Whatever colour or frequency is not absorbed, is reflected. A red surface, for example, absorbs all colours except its particular shade of red. Many metabolic processes are triggered by specific frequencies, and if the required frequency of light is not available or available only in limited quantity, then the response, the function or the reaction is impeded or does not occur at all.

In his book *Light and Health*<sup>3</sup> Dr. John N. Ott furnishes experimental evidence of the detrimental effects of colour or frequency-deficient illumination. The graphs shown in

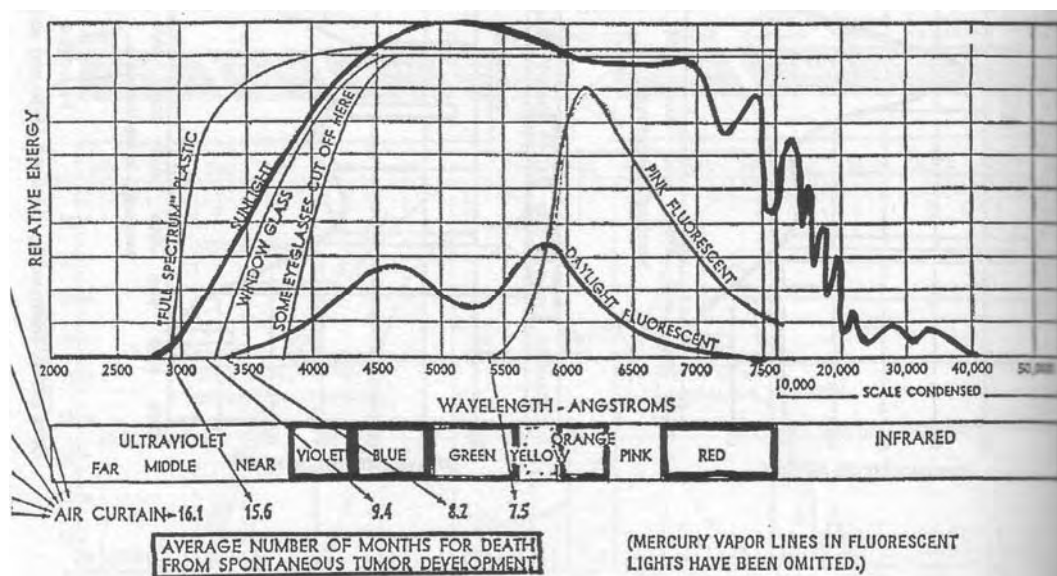


Fig. 16.5 Influence of wavelengths of light on spontaneous tumor development in  $C_3H$  mice

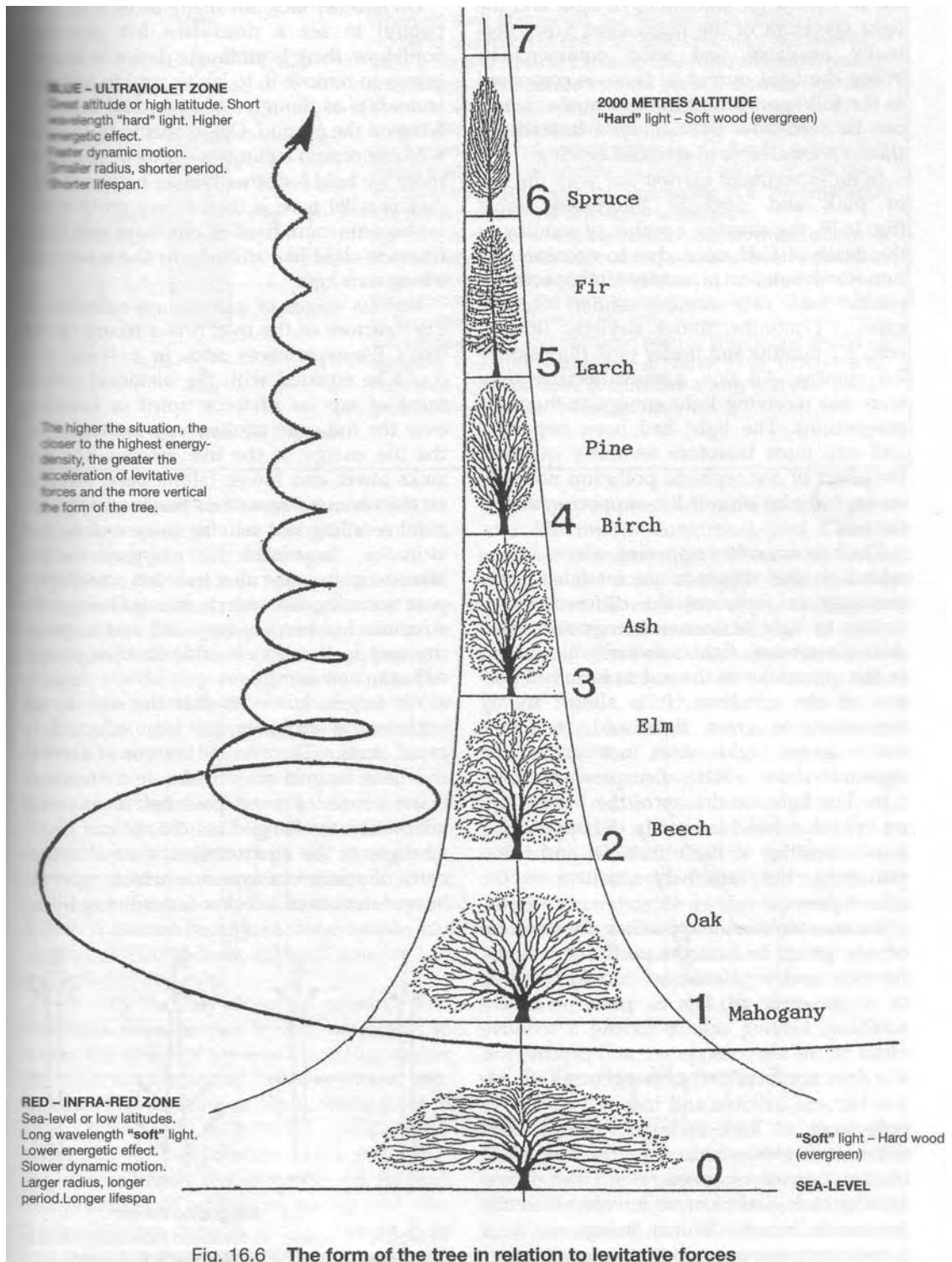


fig. 16.4 show the intensities of light and the light spectrum of the fluorescent tubes normally available and used commercially. When the light output of these is compared to the full spectrum of light from the Sun, it can be seen how deficient and limited are these various forms of artificial lighting.

In an experiment carried out with the use of 'pink' and 'daylight' fluorescent lights (fig. 16.5), the average number of months to the death of  $C_3H$  mice, due to spontaneous tumour development, under 'full spectrum' plastic was 15.6 months; under window glass, 9.4 months; under daylight fluorescent, 8.7 months and under pink fluorescent, 7.5 months. All this, simply because they were not receiving light energy in the right proportions. The light had been impaired, and one must therefore seriously question the effect of atmospheric pollution not only on us, but also on our life-support system - the tree.

The two smoother opposing curves I have added to this diagram are intended schematically to represent the different sensitivities to light of human beings and trees. A tree's greatest light sensitivity lies either in the ultraviolet or the red to infra-red portion of the spectrum. It is almost totally insensitive to green light and, if placed under green light, does not grow and appears to be in a state of suspended animation. The light sensitivity of the human eye on the other hand is exactly the opposite. It is not sensitive to the ultraviolet and infra-red areas, but extremely sensitive to the colour green.

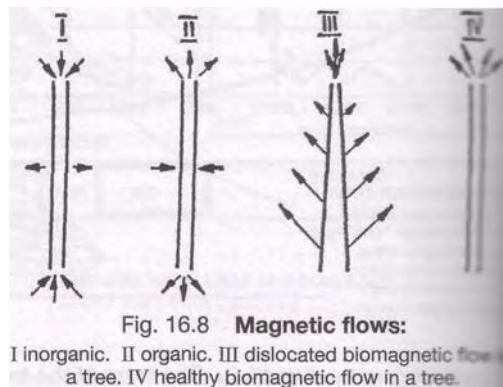
Because we cannot appreciate the presence of any green in sunlight itself, were it not for trees and vegetation we would see little or no green at all. For us, green is a very soothing, healing colour, having a sedative effect on the nervous system and psyche, and if it does not form part of our general life, we can become irritable and indeed violent. We only have to look at large modern cities where few trees exist to appreciate the effect of the absence of green. Here then is yet another biological niche, as it were, where the interaction between human beings and trees is complementary.

On another tack, for many of us it is quite painful to see a dead tree left standing. Somehow, there is an innate desire in human beings to remove it, to lay its soul to rest as it were. It is as though a cadaver had been left lying on the ground. One wants to bury it. So we have certain feelings towards trees akin to those we hold for other human beings. A further parallel here is that, as we grow older, we become more fixed in our ways and often revert to child-like attitudes or those we held a long time ago.

Various stages of growth are reflected in the structure of the tree. It is a record of the tree's life-experiences and, in a sense this could be equated with the historical move-

ment of sap (as lifeforce, spirit or intellect, over the full span of the tree's existence. As the life energy of the tree recedes, the sap sinks lower and lower, falling back through all the various stages of its previous development recalling and reliving these events and attitudes imprinted in bygone days. Moreover, because the tree has developed past maturity, like elderly human beings, its structure has become very stiff and unbending and is therefore unable to change and adjust to new conditions.

We forget, however, that the tree as an organism is probably the least adapted to rapid change. The average lifetime of a tree is the next longest after rocks, and therefore many centuries must pass before any real adaptation to changed conditions can occur. Changes in the environment, even if apparently of minor consequence, which may not be as detrimental to other faster-living living



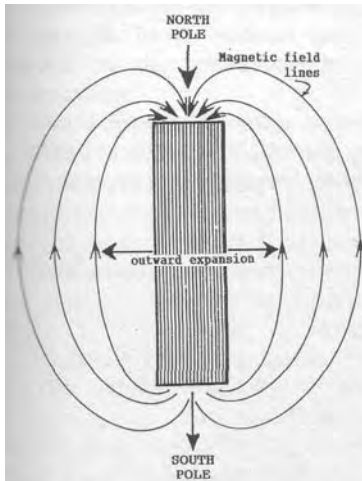


Fig. 16.7 Soft iron bar magnet

When we think of magnets, our first image is usually of an *inorganic* one made of soft iron, where the magnetic lines of force enter and leave at the ends, (the north and south poles), and eloignate themselves from the bar at the centre (fig. 16.7). However, according to Viktor Schauberger, the tree, as an *organic* bar magnet, accumulates its energies laterally and discharges them in a vertical plane. Fig. 16.8 is his explanatory diagram which schematically depicts this and compares the inorganic magnet at I with the organic one at II. The antithetical functional mode of the biomagnet is apparent. Fig. 16.9, is clearer where the direction of movement of the lines of magnetic force surrounding a wound steel hyperbolic cone-shaped electromagnet are indicated by the arrowed lines. In contrast to the bar magnet shown in fig. 16.7, the lines of force here actually enter the cone laterally in the upper more cylindrical portion and can be seen to charge and discharge vertically. The other two images, III and IV, in fig. 16.8 relate to natural or unnatural flows of formative energy and their effect growth, which will be referred to later.

things, can cause trees to wither and die and, in our ignorance of their necessities for life, we are ringing in their death knell. We owe trees an enormous debt of gratitude for their silent, unceasing service in so many areas. Although extremely vulnerable to our depredations, they do not apparently protest, nor do they ever go on strike for better pay and conditions, but continue day by day unstintingly to provide the wherewithal for all forms of life. Amongst their many functions trees stabilise the climate and, were forest cover more widespread than it is today, they would be able to distribute water-vapour very evenly through the atmosphere, thereby ensuring an even distribution of heat or temperature, as was discussed in chapters 6 & 9. A mature beech tree, for example, has up to 7,000,000 leaves with an area of 1.47 evaporative hectares.

Not only do they draw up moisture and nutrients from deeper levels, but trees also break the speed of the wind, creating shelter for other life-forms and lesser species of vegetation. The planting of shelter-belts (best in spiral form) reduces both the speed of the wind and the dehydration of the soil, creating microclimates that help the soil through the provision of additional humus and protection against erosion. Indeed shelter belts can influence the evaporation rate over culti-

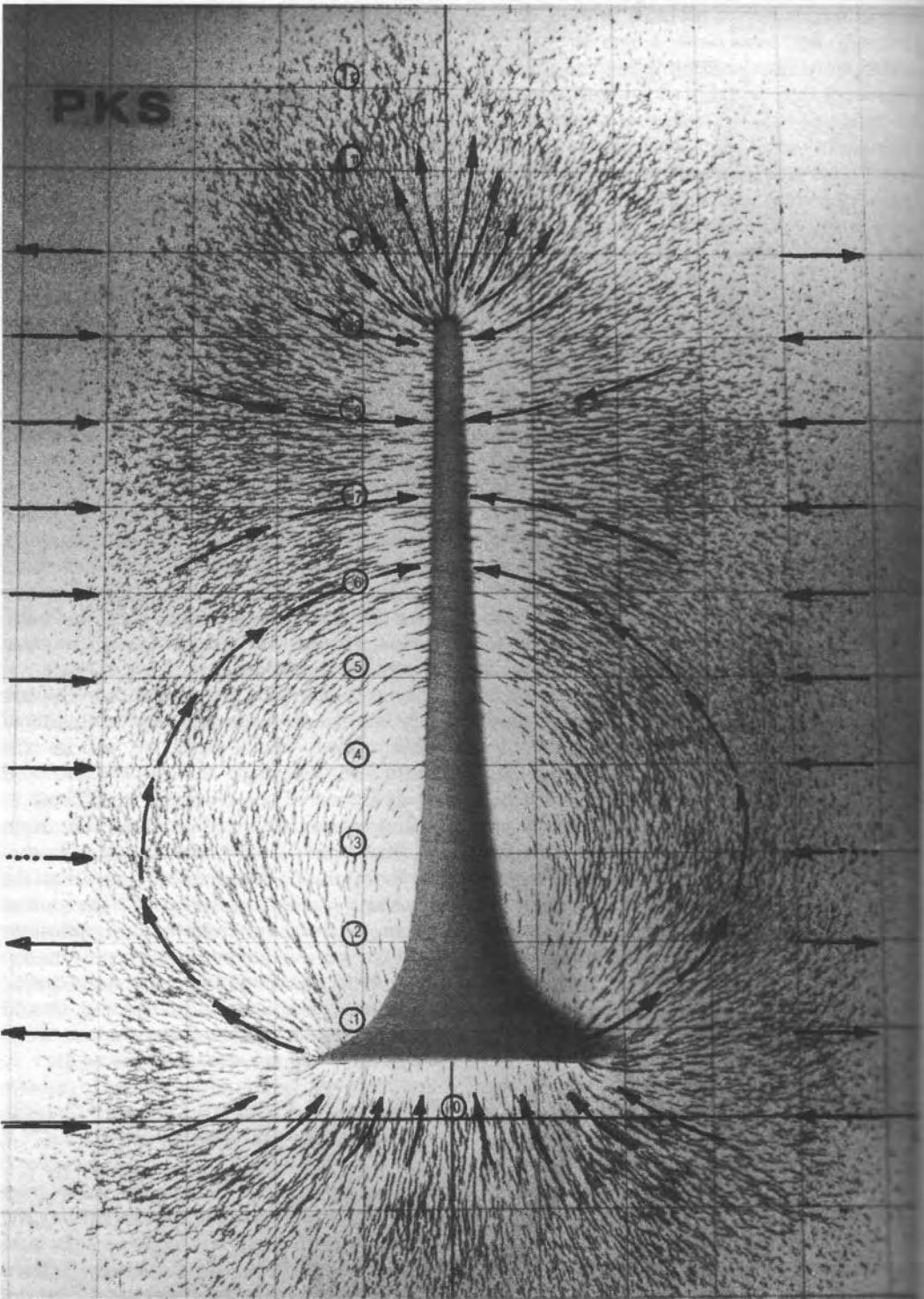
vated land by as much as 30 metres upwind and 120 metres downwind, and Canadian research has shown that farms with 1/3rd tree cover in the form of shelter-belts are more productive than farms of equivalent area where there are no trees at all.

These shelter belts also trap carbon-dioxide ( $\text{CO}_2$ ), the heaviest naturally occurring atmospheric gas, which chiefly resides in the lowest levels of the atmosphere and which is one of the essential ingredients in photosynthesis. More  $\text{CO}_2$  under the right conditions means more healthy photosynthesis. From this it becomes obvious that the removal of the clusters of trees and hedgerows between fields will significantly affect carbon-dioxide availability and thereby productivity, which will have the most drastic long-term consequences. Just as we should revere water, so too should we revere trees, which like water are also the givers of life.

## 16.2 The Bio-Magnetic Tree

In chapter 4 we discussed the connection between bio-magnetism and levitation. The tree is an important example of this, and there seems to be a certain correlation between altitude and tree species. The form, inner structure and lifespan of a given tree is

Fig 16.9 Hyperbolic electromagnetic cone



also dependent on the invisible movement of the energies in its natural habitat and is moulded by the interaction of gravitation and levitation.

It would appear that there is an increase in the levitative force with altitude, as depicted by the upward, convergent spiral in fig. 16.5. for example, if the tree is growing at low latitudes near the Equator or situated in a low-lying area, where the atmospheric density is greater and the dynamic movement correspondingly slower, (i.e. more harmonically structured energy in relation to dynamic energy), then, if not in a rainforest, the branches tend to spread out more horizontally than upwardly. These species of timber - longer living hardwoods, such as beech, oak, elms, etc, whose lifespans lie between 200 and 300 years in reflection of the denser, less dynamic energy field and the weaker influence of the upward energy spiral (levitative force) active in their lower altitude environment have a tendency to be more robust.

As we progress towards higher latitudes, or higher altitudes, or a combination of the two, then the trees gradually assume a different, more vertical form, reflecting this up-lifting energy path. Since the levitational forces increase as gravity weakens with altitude, the higher the altitude of the habitat, the less the atmospheric density and the greater the dynamic component of the ambient energetic field and the faster the dynamic movement. Where the atmospheric density is least, the more vertical forms of the trees correspond to the more rapid upward flow of the forces of buoyancy, of levitation; the wood is softer and the lifetimes of the trees shorter (pine, fir, larch and spruce with an average span of 120-300 years).

Like all other organisms, trees are also the product of electromagnetic forces, their various forms reflecting the particular balance between the two opposing forces. In this case, however, we are not concerned with the more common conceptions of electromagnetic forces associated with today's technical devices and machines, but rather with bio-electric and biomagnetic energies, the latter also being described as diamagnetic and harmonically related to levitation.

In step with the alternation between night and day - the living pulsation of the Earth's inbreathing and outbreathing - this discharge of immaterial energies is either upwards by day or downwards by night. The energies the tree absorbs into the trunk horizontally are those female, fructigenic energies and animating currents propagated laterally and in their greatest intensity immediately above and below the ground surface, having been stimulated by the fertilising energy of the Sun as discussed in chapter 3. In their interaction with the seminal essences of the Sun, their formerly horizontal disposition is changed and produced vertically, in the physical process we normally describe as 'growth', which is the material result of unseen energetic interactions.

The immaterial energies, however, continue their upward or downward paths in a more subtle form, having now been purged of the more physical impurities which constitute physical growth. In their levitational ascent these energies sweep up the various higher resonances and essences of the substances in the tree, producing the qualitatively different evapo-transpiration from the trees mentioned in the discussion of the full hydrological cycle in chapter 9.

## 163 Tree Types

Trees can be classified generally into seven major categories (fig. 16.10). They can be subdivided in terms of latitude, altitude, whether they are light-demanding or shade-demanding species, the former having a thick, rough bark and the latter a smooth thin bark, and whether they are hardwood or softwood, broad-leaved, conifer, evergreen and so on.

Before we examine trees and their growth in relation to the above categories in more detail, it would perhaps be appropriate to have a greater understanding of the specific contribution that trees make to the general environment. We shall take the example of a 100 year-old tree, whose extraordinary performance was calculated by Walter Schauburger in the 1970s in relation to the average output of European species:



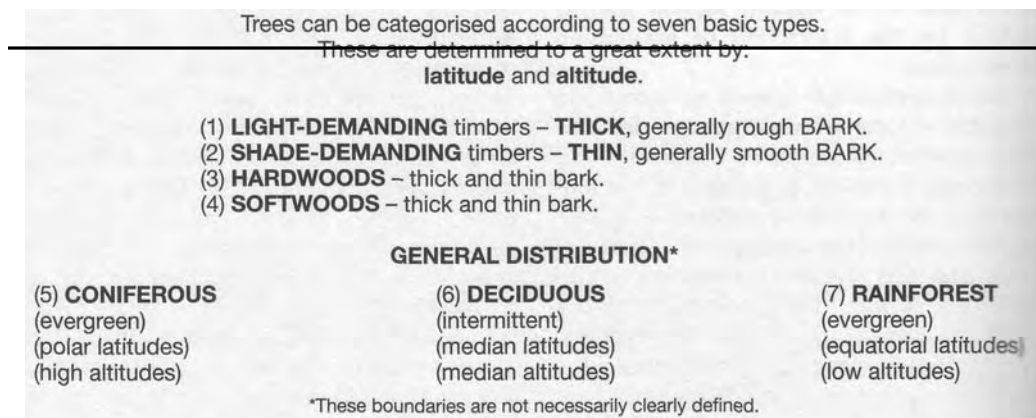


Fig. 16.10 Basic Tree Types

During the course of its life, this 100 year-old tree:

- Has processed and fixed the amount of carbon-dioxide contained in 18 million cubic metres of natural air in the form of about 2500kg of pure carbon (C).
- Has photochemically converted 9,100kg of CO<sub>2</sub> and 3,700lit of H<sub>2</sub>O.
- Has stored up circa 23 million kilogram-calories. (a calorific value equivalent to 3,500kg of hard pit coal)
- Has made available for the respiration of human and beast 6,600kg of molecular oxygen (O<sub>2</sub>).
- Against the forces of gravity, has drawn from its roots right up to its crown and evaporated into the atmosphere at least 2,500 tonnes of water,

Every tree is therefore a water-column and if such a column, which continually supplies and recharges the atmosphere with water, is cut down, then this amount of water is lost.

- Thereby fixing a mechanical equivalent of heat equal to the calorific value of 2,500kg of coal.
- Has supplied a member of the consumer society with oxygen sufficient for 20 years, and its nature is such, that the larger it grows, the more oxygen it produces.

In view of such achievements, who in future could value this tree merely for its timber?

The combustion of 100 litres of petrol consumes about 230kg of oxygen. That is, after a trip of barely 30,000km (9.6lit/100km), this tree's entire 100 year production of oxygen has been squandered.

Driving an average size car 30,000km = 100 years of oxygen production.

If a person chooses to breathe for 3 years, to burn 400lit of petrol or heating oil, or 400kg of coal, then the production through photosynthesis of 1 tonne of oxygen is required.

1 tonne of O<sub>2</sub> = the O<sub>2</sub> content of 3,620 m<sup>3</sup> of air (+15C° at 1 atm)

The photosynthetic production of 1 tonne of oxygen necessitates:

- The building up of 0.935 tonnes C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> (carbohydrate),
- which process requires 1.37 tonnes CO<sub>2</sub> (carbon-dioxide) and 0.56 tonnes H<sub>2</sub>O (water)
- The transpiration of 230-930 tonnes H<sub>2</sub>O
- Light energy equal to 527 x 10<sup>6</sup> quanta (v= 440 x 10<sup>12</sup>) which represents 3.52 million kilocalories.

[Walter Schaubeger]

Not a small achievement by any stretch of the imagination!

## 16.4 Trees - the Mirrors of Light

An expression of energy, the effect of light on growth has two principal functions. Firstly it in part determines the structure of

the timber and, secondly, it influences the form and character of the tree itself, depending on whether it is a shade-demanding or a light-demanding species, all of which are also related to latitude and altitude as indicated in fig. 16.6.

Since whatever we observe in Nature is a reflection as well as a product of a certain form energy, then trees are also a mirror of the quality of light that falls in their natural habitat. Not only do their various colours reflect those frequencies of light harmful to them, and thus not absorbed (repelled) but, as a rule of thumb, where the incident light has a greater proportion of high-frequency, high-energy, ultraviolet light, in other words hard light, the wood is soft. Conversely, where there is a greater preponderance of low-frequency, low-energy, infra-red, soft light, the wood is hard. We can observe this very clearly in Australia's native timbers, famous for their hardness. Because of the obliquity of the Earth's axis to the ecliptic (ca.  $23^{\circ}27''$ ), the eccentricity of its orbit and Australia's position on the Tropic of Capricorn in the southern hemisphere, at perihelion (when the Earth is closest to the Sun - in January), the intensity of infra-red light is greatest as Australia experiences its high summer. This intensity is further augmented by the additional infra-red radiation resulting from Australia's semi-desert condition. Australia, along with other countries in the southern hemisphere, is therefore exposed to more intense infra-red light than their counterparts in the north, which experience more moderate conditions.

There appears here to be a seemingly anomalous effect, however. In our awareness of light, we generally limit our consideration to the seven principal colours of the visible spectrum, which does not comprise a full octave in terms of frequency, proceeding upwards as it does from wavelengths of 740-390 nanometres ( $\text{nm}=1/1,000,000,000$  metre) or frequencies of  $4.3\text{--}7.5 \times 10^{14}$  cycles per second (cps) or hertz (Hz) [ $8.6 \times 10^{14}$  cps would represent the full octave]. We cannot perceive the full spectrum of the octave in which light is manifested, because our eyes

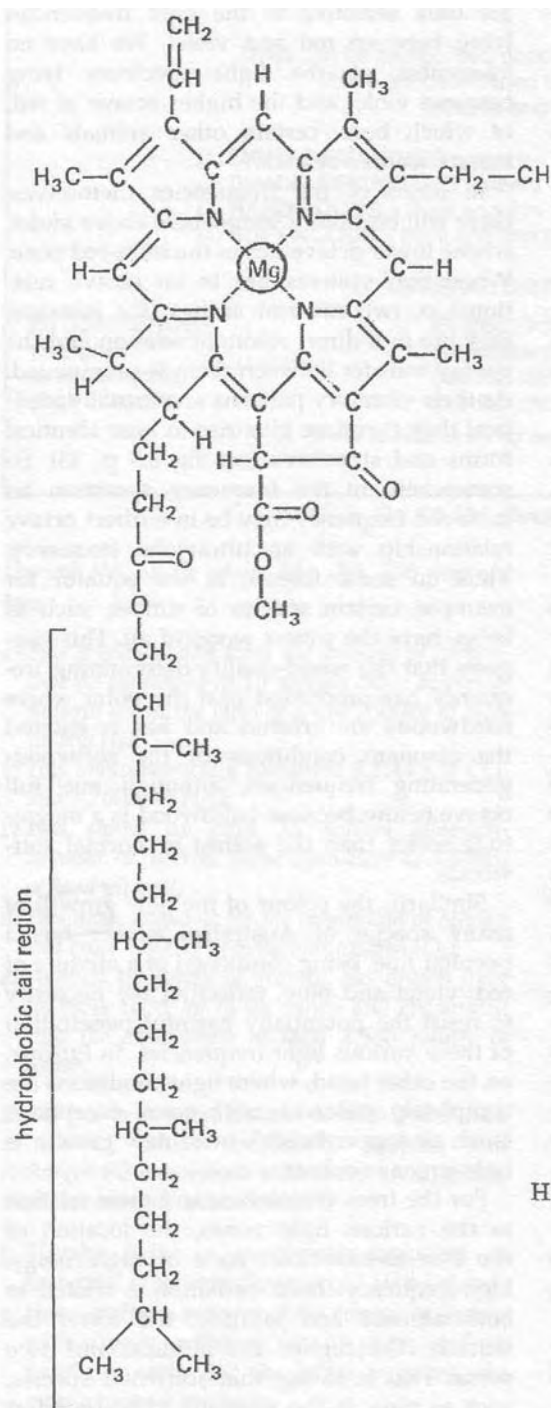
are only sensitive to the light frequencies lying between red and violet. We have no awareness of the light spectrum lying between violet and the higher octave of red, of which bees, certain other animals and insects seem to be aware.

In terms of the frequencies themselves, there will be a point somewhere above violet, whose lower octave lies in the infra-red zone. When two systems are in an octave relationship, two musical strings, for instance, they are in a direct resonant relation and the energy transfer between them is unimpeded. As their vibratory patterns are virtually identical they therefore give rise to near identical forms and structures (see fig. 3.3 p. 43). So somewhere in the frequency spectrum an infra-red frequency may be in a direct octave relationship with an ultraviolet frequency. Thus, in some forests, at the equator for example, certain species of timber, such as balsa, have the softest wood of all. This suggests that the wood-quality-determining frequency has proceeded past the point where hardwoods are created and has re-entered the resonant conditions of the softwood-generating frequencies, although one full octave below, because balsawood is a magnitude softer than the softest of normal softwoods.

Similarly, the colour of the new growth of many species of Australian timber has a peculiar hue, being comprised of a mixture of red, violet and blue, reflecting the necessity to resist the potentially harmful penetration of these various light frequencies. In Europe, on the other hand, where light conditions are completely different, with some exceptions (such as copper-beech), most new growth is light-green in colour.

For the trees themselves and their relation to the various light zones, the location of the blue-to-ultraviolet zone of high-energy, high-frequency 'hard' radiation is related to both altitude and latitude; the lower the latitude, the higher the altitude and vice versa. That is to say that softwood species, such as pine, in the main are to be found at low altitudes in high latitudes, and at high altitudes in low latitudes. Conversely hardwood trees, with some exceptions, are





**Fig. 16.11 The structure of chlorophyll**

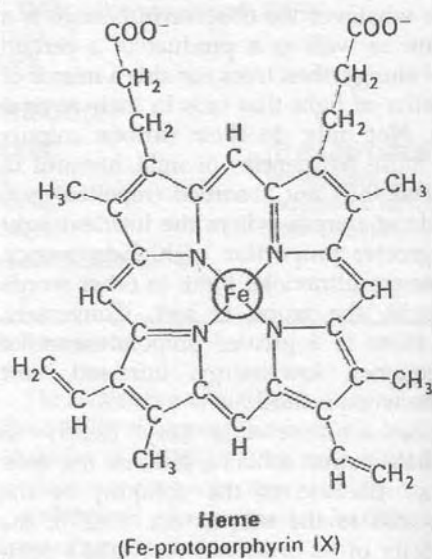
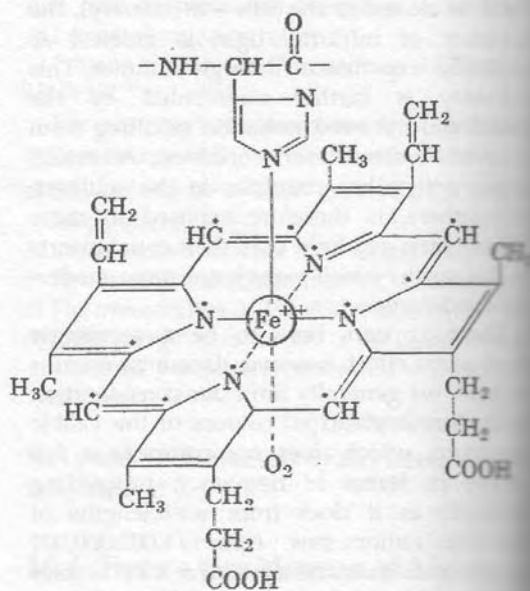


Fig. 16.12



generally to be found at low altitudes in low latitudes (Amazon basin and rainforests) and at low to median altitudes at low to median latitudes.

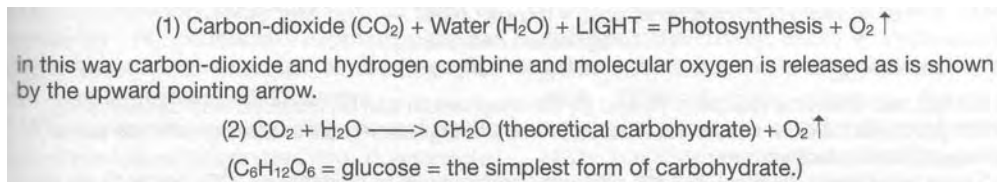
Ultraviolet, shortwave 'hard' light has a higher energetic content, a faster dynamic motion and the spiralling movement of the light itself has a smaller radius, shorter period. This suggests that, as a result of this greater dynamic, the life-processes in such a zone should take place at a faster pace; indeed high-altitude trees, such as spruce, do have relatively short lifetimes compared to some of the deciduous species, beeches and oaks, for example. These high-altitude trees are often evergreen and the wood soft. In the opposite light zone, at sea level or low latitudes, where long wave-length, low-energy, low-frequency, 'soft' light predominates, the wood is hard and the trees generally longer lived.

## 16.5 Photosynthesis

The sap responds in its ebb and flow, like tides, to the attraction of the Sun and the Moon. Sometimes the powers of

Nature works through pulsation, through inbreathing and outbreathing. When the Sun rises, then the sap, charged with trace-elements and gases, is drawn up due to the energetic stimulation or information of the Sun's waxing influence in order to further the processes of photosynthesis through the supply of minerals, etc. Photosynthesis, however, is intimately connected with the amount and the quality of the incident and available light. When the level of light falls or the presence of the full light spectrum is absent due to atmospheric pollution, then growth, photosynthesis or the creation of chlorophyll diminishes and less oxygen is transformed and released into the atmosphere.

In photosynthesis a certain portion of the upwardly streaming water or sap is transformed into carbohydrates, the remaining water being employed for evaporation and the cooling of the tree. Cooling is the process of energetic concentration or densification (= tensioning), which has nothing to do with technical, thermodynamic vaporisation. In its simplest form the photosynthetic reaction, where molecular oxygen is released for the respiration of man and beast alike, takes place as follows:-



these luminaries are in unison, at other times in opposition. This fluctuation from above to below and back again correspond to concepts of yin inward movement and yang outward movement and their boundary conditions of exhaustion. That is to say, when the combined downward pull of both Sun and Moon reaches the extreme limits of its effect, like the physical limit of an inward breath, its influence weakens. It then gives way to the opposite function of their combined upward pull whose strength increases until its power culminates (limit of outward breath).

With the powerful coherence of the water-molecule in the earlier discussion of electrolysis in chapter 8, it seems most likely here that it is the carbon-dioxide molecule that releases its molecular oxygen, but not the water molecule its single oxygen atom. Through this process the otherwise excessive quantities of CO<sub>2</sub> and O<sub>2</sub> are fixed both in the short and long term, so that the correct proportions between the atmospheric gases comprising CO<sub>2</sub> (0.3%), oxygen (20.95%), nitrogen (78.08%) and the noble gases (0.93%) are maintained. All living systems can thus be viewed as Nature's energy-refuse heaps and purifica-



become collectively more massive, i.e. more material in the matter-energy balance, in their descent as dipole molecules, which simultaneously orbit along their spiral paths, rotate about their own axes and circulate their energies internally, these raindrops are no longer able to float in the particular energy field where aggregation occurred and fall earthwards.

On their downward spin they not only absorb increasing quantities of atmospheric oxygen, nitrogen and other trace-gases, but at the same time generate increasingly intense bioelectric and biomagnetic fields. They are thus endowed with a certain tension (life potential), which is ultimately 'given' to the plants upon which they fall. When the oxygen and other gases thus collected and concentrated reach the ground or fall upon leaf structures, they are absorbed and, together with the accumulated immaterial energies, provoke heightened activity in all processes of transformation and growth. This is why plant growth responds with much greater vitality and activity after a fall of rain than it does with conventional systems of irrigation, in which the fall-distance is considerably shorter in relation to that of the raindrop, and, consequently, also such water has no possibility of beneficial exposure to the higher immaterial energies of the Sun present at an altitude of 4,000 metres.

When rainwater reaches the ground under a positive temperature gradient, it penetrates into the soil. The overabundance of oxygen is gradually absorbed and dispersed into the surrounding soil, initially to activate humus functions and micro-organism activity in the upper layers of the soil. This activity diminishes as the rainwater sinks deeper into the substrata and progressively releases the excess oxygen, as it gradually cools towards the  $+4^{\circ}\text{C}$  anomaly point. Having been almost totally expelled from the water at this temperature, the residual free oxygen meets with the free hydrogen, which has been released in the combining of either magnesium (Mg) or calcium (Ca) with carbon-dioxide ( $\text{CO}_2$ ) and water ( $\text{H}_2\text{O}$ ), forming either magnesium- or calcium-carbonate; calcium being inter-

changeable with magnesium in reactions (4) and (5) above.

Due to the coolness of the ambient temperatures, the oxygen is in its most passive state and thus is easily bound by the hydrogen. New water molecules -  $\text{H}_2\text{O}$  - are formed as a result, i.e. water is born and created. From which it follows that the amount of available water is not constant!

Once again, this is pure water unpolluted by any other substances or ingredients. Born under temperature conditions of about  $+4^{\circ}\text{C}$  (level of highest energy density and the so-called anomaly point), this juvenile immature water, which has all the attributes of insatiable youth, begins to rise up through the various energy-horizons (the most finely differentiated temperature strata), accumulating more and more information in the form of other energetic systems and resonances.

As it slowly ascends, it gradually begins to warm, dissolving more and more minerals, salts and trace-elements on its way. These become ionised in the process and brought into a condition in which they can be taken up by the plants and their micro-organisms. Salt, for example, is dissociated into its two components of chlorine (Cl) and sodium (Na), which develop negative and positive charges respectively. From a so-called 'inorganic' substance, two living polarities are created. Without these charges, these now separated elements could not combine with other positively or negatively charged substances. The necessary attraction would be missing.

The water is now able to give to life instead of taking from it, creating life-imparting macro water molecules. These various macro-molecular nutrients are then further activated by the increasingly available oxygen. Growth activity rises as these molecules themselves are drawn up through the capillaries of the plants or trees, becoming more and more refined as energy and nutrients are progressively imparted to the various structures and chemical processes on the way up. The more these macro-molecules of mature water become refined, the more their potency increases until, at the forefront or workface of

growth itself, when their material quantity is at a minimum and of such size as to be able to pass through the extremely minute foramen and stomata, their potency, energetic quality and action reaches a maximum at the material level. Thus the greatest growth, development and unfoldment occurs at this point, namely at the furthest extremities of the tree, plant or blade of grass.

It is therefore along this upward developmental path from the deeper strata towards the surface that water is transformed from a seeking, 'taking' system into a ripe, information-rich condition, when it is at any moment ready to distribute this new quantity of transformed, qualitatively improved information to the living systems of its environment. An immature, 'taking' system has been transmuted into a radiating, 'giving' system, possessed of and offering the widest variety of ionised elements in homeopathic doses.

Precisely at the point now reached by this alive, mineral- and trace-element-rich water, full of promise for the future, the next, young, 'taking', information-seeking systems are to be found, namely, the fine hair-roots of the plant systems and their micro-organisms, or 'micro-transmuters'. Here the water is first taken up as a fluid by the micro-organisms which, as catalysts, transform the raw materials, elements, CO<sub>2</sub>, oxygen, nitrogen, etc. into larger molecules and fluid compounds.

These do not only serve the rapid extension of the hair-roots themselves (the receivers of mineral nutrients and more subtle energies), but also as the principal substances for the inner growth of the plant as a whole as they rise through the enlarging capillaries, ducts, arteries and canals in the roots. These coarse macro-molecules are sucked towards the centre and deposited in order to build up the central structure of the plant or tree. The hair roots act like the small tributaries of a river, contributing formative fluids to the main channels of the major roots. This increasing, but slower-flowing quantity of formative material is built into the tree structure up to the level of the ground-surface, where suddenly the supply of quasi-solid physical matter (minerals, salts, trace-

elements, etc.) from sources external to the plant ceases.

Here the threshold of the unseen world of the root-zone is reached and the visible, energetic world, endowed with a higher dynamic and suffused with radiant, fertilising energy from the Sun, is entered. Perhaps it is here, precisely at the surface of the ground, that the actual 'heart' of the tree is to be found. This is the point where the two aspects of the tree, the two systems of distribution, the seen and the unseen, meet and are united.

In the human body, the veins and arteries enlarge in the direction of the heart and narrow towards the capillaries, all of which is ordered by subtle differences in temperature or by differences in charge, energy density and energetic activity. The human body possesses two principal, pulsating circulation systems; to the lungs and to the rest of the body via the heart. The former seeks renewal of oxygen and discharge of CO<sub>2</sub> and water, whereas the latter delivers oxygen as well as nutrients to all parts of the body and on its return journey collects and transports CO<sub>2</sub> and waste matter.

The tree, however, has no pulsating heart as such. The 'pulsators' responsible for the movement of its sap are the Sun and the Moon. As the world rotates, the direction of the Sun's and the Moon's attraction fluctuates from above to below, through which a discontinuous pulsation between the boundary conditions of inhaling and exhaling arises.

From the ground up, the various sap-ducts and capillaries begin to narrow in hyperbolic measure and according to their physical size and consistency, the coarser elements, which are unable to be raised further, are built into the tree's structure at the point where their upward movement ceases. The higher and the deeper the sap flows, the smaller the diameter of the sap vessels and the faster the sap streams both upwards and downwards. The greater the homeopathic potential, the smaller the material quantities, so that ultimately only the most minute particles, which are hardly to be counted as matter, stream up toward the crown or down to the roots with increa-

ing spiral gyration, dynamic and energetic effect.

Right at the very extremities of crown and root zones, the growth activity is at a maximum, because all that here is active are the most highly potentiated homeopathic quantities and resonances, which can still be described as structured matter. However, this upward or downward stream of energy does not stop here. The very pinnacle of the growth process, where physical extension ceases, could perhaps be described as the jumping off point, namely the point where the physical, harmonically structured visible aspect of the plant terminates and where the purely energetic, form-controlling aspect, the spirit of the plant reunites with its wholly invisible path, now released from the constraints of matter. There is a complementarity here between the unseen extremities of the root zone, where the energetic polarity seems to be that of life seeking life, and, at the other extremity, at the crown of the tree, life giving life.

Being the finest of the fine, all that eventually exits from these extremities is the water molecule, but in the case of the crown zone, a water molecule which carries within it all the no longer material, but highly

active, highest overtone resonances of the trace elements previously taken up in the root zone. Having become refined to the point of being almost pure energy and an almost pure water molecule again, albeit with ultra-high potency, homeopathic, ethereal, trace element overtone resonances, it then ascends from the leaves through the minute stomata, drawn ever upward towards the higher level of energy at an altitude of 3000-4000 metres, once more to reach its energy anomaly point, or that energy field-density commensurate with its own internal energy density or quality. Here it is once more in a 'taking' mode in order to equip itself with yet finer and more spiritual energies obtained from the Sun and from the very cosmos itself.

This further accumulation of information in addition to that already borne aloft, represents a large increase in both the power and quality of the information that drives evolution. Here too it floats until attracted once more into association with its peers, eventually to fall again to the Earth as rain, enriched with new energy and new vitality, bringing with it all the new information and formative energy it has accumulated, thus providing a fresh impulse for further evolutionary processes and development.

## Notes

1. New Science Library, Shambhala, 1987, ISBN: 0-87773-364-3.
2. Health and Light by Dr. John N.Ott: Devin-Adair, Greenwich CT, USA, 1973, ISBN: 0-671-47433-2.
3. *ibid*.
4. "Chlorophyll Structure" in *The Molecular Biology of the Cell* by B. Alberts, D. Bray, J. Lewis, M. Raff, K. Roberts & J.D. Watson, p.517, fig. 9-46: Garland, New York, USA, 1983. ISBN 0-8240-7282-0.
5. *ibid*, p.495: Fig: 9-19, "Heme structure".
6. Here we are confronted with an apparent paradox, where in the physical world of polarities, systems with like charges and like potential or the same sex repel each other. Only those systems with complementary polarities are drawn together and a new synthesis for creation and regeneration is made possible. In this type of more animal magnetism, individualities merge to produce a new third system or entity. On the other hand, at a more spiritual level under the influence of the higher dialectic counter-

part, bio-magnetism, those systems that attract each other are imbued with the same desires, the same interests and the same goals. This is an attraction that extends beyond their purely physical differences.

This is what happens with raindrops. It is a more immaterial attraction and it could thus be construed that the agglomeration of water-molecules into raindrops is ordered from a much higher source through bio-magnetic, upbuilding and uplifting forces operating at a completely different level. Evolution can therefore be seen to evolve in a positive sense only when the lesser physical opposites are over-ridden or guided and united by a higher purpose. If this order is reversed and the attraction between like systems occurs at a level below the level of the attraction of opposites, then evolution is doomed to become unproductive. Here like attracting like is genetically unfruitful and devolutionary (*viz.* homosexuality and lesbianism).

## FORESTRY - A NOBLE OR IGNOBLE ART?

The forest should only be cared for by people who love it. Those who view the forest merely as an object of speculation, do it and all other living creatures great harm, for the forest is the cradle of water. If the forest dies, then the springs will dry up, the meadows will become barren and many countries will inevitably be seized by unrest of such a kind that it will bode ill for every one of us.<sup>1</sup>

Viktor Schauburger

### 17.1 Contemporary Forestry

**B**efore the advent of the science of forestry, which had its earliest beginnings in Switzerland about 160 years ago, the health and regeneration of the forest was largely left to Nature. Under normal circumstances in the high forest a vast mixture of species of overstorey and understorey flourish in harmonious interaction, each contributing in its own special way to the well-being of the whole.

Those species with deep root-systems bring up valuable nutrients from below, which are beyond the reach of the more shallow-rooted, and through the casting of their leaves in autumn, enrich the biomass and enhance the development of the layer of humus on the forest floor. Here, with the cooperative activity of the myriads of micro-organisms inhabiting the humus, the nutrients are transformed into a state in which they can readily be taken up by the vegetation. Due to the presence of the protective canopy of dense foliage overhead, the

ground remains cool and moist and in a condition to absorb and retain up to 85% of whatever rain falls, thereby ensuring the recharge of the groundwater table and the full cycle of water.

Those trees and other species of vegetation very sensitive to light and heat are shielded from these degenerative influences by varieties of tree whose structure is designed to resist them and which, as guardians of the forest, range themselves around the edges of it. Under this protection and that of the mother trees the young saplings grow up healthily in the diffuse light and coolness of the CO<sub>2</sub>-rich atmosphere below the crown cover, which shields the young growth, not only from the harmful effects of direct sunlight and heat, but also from the buffeting of strong winds and the impact of heavy rain. Only when the mother tree finally dies is space and light made available to the rising generation, who by this time, in their adolescence, as it were, are ready and fully equipped to assume the role of their parent trees.

Under these conditions the life of succeeding generations takes place in its fullness, each able to reach full maturity and live out its allotted span in the ceaseless cycle of life and death. The seeds of these mature trees, from which the up-and-coming new growth are to evolve, are therefore of the highest quality, thus ensuring the continuing fertility and healthy reproduction of their offspring. In this highest state of order founded on wide bio-diversity, Nature is in a changeable lively, wholesome and productive state of equilibrium.

All this vibrant tranquility rapidly began to vanish, however, as humanity made further and further inroads into the resources of the forest. Larger and larger surfaces were laid bare for agriculture but, as long as this was on a relatively small scale, the damage to the environment was slight. Sometimes this clearing was for other purposes. When Henry VIII ordered the massive expansion of the Royal Navy in the early 16th century, for example, two thousand mature oak trees were required to build each vessel, virtually denuding England of the vast oak forests, whose size and density was recorded by the Romans at the time of their invasion in 54BC. The forest thus was seen as an unlimited repository of useful materials, and no thought was given to the conditions vital for its continued existence or to the effect of its removal. This was despite the fact that in many ways there was a greater affinity for Nature in earlier times and a greater knowledge of timber, as the following quotation taken from the records of an Austrian master cartwright written in 1843 shows<sup>2</sup>.

There are only three days suited to kiln-drying in the year: April 3rd, July 30th and St Catherine's day. The latter is also good for casting ball and shot.

To make sure that timber is solid and firm it should be felled during the first 8 days after the new moon, if this is in a 'soft sign' (i.e. in any of the zodiacal signs of Virgo, Pisces, Gemini or Libra).

To make sure that timber does not rot after felling, there are only three days in the year when it can be felled. The first day after the Conversion of St. Paul (26th January) and the 10th and 13th of February.

To obtain incombustible timber, it should be felled the first day in March, when the Moon still has 48 hours to wane.

The best day for felling timber so that it does not shrink is the third day in autumn when daylight is reducing and the Moon waxes above the first quarter.

In order that there should be good regrowth, firewood should be cut in October during the first quarter of the rising Moon.

Saw logs should be cut under the rising sign of Pisces. They should be leached out in water under the sinking signs of Pisces or Cancer.

So that it does not shrink, timber should be felled when the Moon is three days old, on a Friday and under the sign of Cancer.

The straight and true wood required by cartwrights, coopers and the like, should be felled under a new Moon and the signs of Scorpio or Cancer. The wood will then remain firm and solid.

To ensure that timber does not swell up, it should be felled in November on the first and second days before the new Moon.

Over the centuries, however, the rape of the forest grew apace, deserts were created where legendary fertility and productivity once held sway. Forests always precede civilisation, and deserts are the evidence of its passing. Whole nations were uprooted and had to move elsewhere in their search for subsistence. Fortunately in those days there was somewhere else to go, because the world's population was still relatively small. But such is not the case today when we are so many and yet, despite all the historic proof of the effects of deforestation on a large scale, we still continue to remove it at an alarming rate as though, like lemmings, we wish to hasten our own extinction.

When someone dies the bell tolls. When the forest dies and with it a whole people, then no-one lifts a finger.<sup>3</sup>

Viktor Schaubberger

Forestry, the husbanding and conserving of the vital national and international assets of the forest should be regarded as foremost amongst professions. Apart from water resources management, it is forestry, above all other disciplines, that is responsible for maintaining the stability of the global climate and Earth's land surfaces.

The science of forestry was born in the early 19th century as the Swiss inaugurated a large-scale reafforestation program to rectify the enormous depredations caused by the massive removal of great trees during Napoleon's passage through the Alps. With a greater sense of place and belonging than exists today, they formulated



strict laws forbidding the planting of species where they did not grow naturally. Spruce and other high altitude trees could not be planted in the valley and the planting of beeches, oaks and other deciduous trees at high levels was equally restricted by law. This legislation still applies in Switzerland and has also been adopted by Austria, although as in other countries, forestry there too has largely devolved into the commercial production of timber chiefly for the manufacture of cheap furniture, wood chipping and firewood.

In the process of mass production, all connection and understanding of the natural processes which provide high-quality timber have been lost. Vast areas of land are cleared of trees completely, exposing the soil to the direct heat and light of the Sun, thereby destroying the delicate soil-capillaries - the vital furnishers of nutrients and soil-moisture - as well as raising the ground temperatures and drastically lowering the groundwater table. Any kind of tree is planted anywhere regardless of its origins and the conditions of its natural habitat, and the home and sustenance of myriads of creatures, whose very existence depends on natural mixed forests, are irrevocably lost.

While the highest quality hardwoods are cleared wholesale for the production of the highest quality paper and furniture, relatively few are replanted because they take a longer time to grow to maturity; in other words the natural period of rotation is too long for commercial exploitation. Any reforestation that does occur is generally done with softwoods such as pine, for forestry, in its ignorance and as an instrument of government, worships short term financial gain, caring nothing for the long-term consequences.

Rotation is reduced to an absolute minimum and biologically speaking represents a denial of the future, because no tree is allowed to reach full maturity. It is a process akin to the killing of a child. While the age of a mature redwood is about 2,000 years, today it is felled after 60 years of growth. This means that it has been cut down when only 3% of its full potential has been realised

and before it can be fruitful. As an act of violence it is equivalent to slaying a human being with a life expectancy of 70 years when it is just over 2 years old. As a result there is no longer any mature seed and gradually the genetic base of the seed deteriorates to the point of infertility. The consequences of this madness are far-reaching, for as the biological diversity is depleted of its highest quality organisms, so too are the qualities, energetic and otherwise, that support higher forms of life. The destruction of the forest goes hand in hand with the destruction of water, and as we have seen in earlier chapters, the consequences of this insanity are appalling.

The death of the forests is only the tip of the iceberg and is a reflection of the deeper deterioration in humankind itself.

Ernst Krebs

## 17.2 Monoculture

In a natural mixed forest, all the available elements and influences required for growth and development are distributed evenly and apportioned to each organism according to its needs. Here differentiation and diversification are at a maximum; nothing is wasted, and nothing is in excess. In Nature order is so complex that it appears chaotic but because it is order and tranquility it satisfies the eye and uplifts the spirit - the eye requiring the most complex 'mirror' for its own balance and equilibrium).

One of the reasons why young, same-age plantations of pine trees disturb the eye is because their level of order in no way matches the much more complex order to be found in natural forest. All their branches are at the same height, producing a disturbing, buzzing horizontality wholly absent in mixed forests. The self-evident, thriving sustainability of old-growth forests which existed on this planet before the advent of humankind, this natural complexity, which represents the very highest state of order, has been completely disregarded. The life-

contributing undergrowth in managed forests is cleared on the assumption that more water and more nutrients will be made available to the commercial crop of trees. Instead of the natural synergetic cooperation between different species, divisive competition is introduced, pitting one plant form against the other.

In a monoculture situation, all the trees strive for the same nutrients and frequencies of light to survive. Here, truly, we are confronted by the survival of the fittest, because the amount and quality of the nutrients specific to a particular species are limited. There is only a certain amount of each element and chemical compound available and all the trees whose lives are wholly dependent on them must fight to get it. The energies change, the pulsation and harmonious interaction are disrupted, disease, discord and dissension prevail, extending their insidious and pernicious effects to all other creatures. Embedded in systems of order of much lower complexity, more highly ordered systems lose their stability and even become extinct. Humankind please take note!

Because the trees or plants in a monoculture only absorb certain frequencies from a fairly narrow bandwidth of frequencies in the available spectrum, only the percentage specific to them is used by the particular species and transformed into creative growth, the remainder being reflected in many cases as additional ambient heat. When, through changes in vibratory patterns the physical form changes, this means quite simply that the previous form has been destroyed or has metamorphosed, sometimes forcibly. In other words the later forms are different to the earlier ones.

Energy as movement is indestructible and thus eternal, there being no such thing as 'neutral' energy in the sense of static energy. Therefore if any energy-path is in any way abrogated or truncated, or in any other way diverted from its naturally-ordained path or form, then such energy is perverted and cannot fulfill its creative functions.

Any function which in any manner maintains a given system in a state of stable health and balance, is the outer expression of

an inner creative force. Were it not creative, then such a system would deteriorate. Thus if energy, in this case the light and energy from the Sun, cannot dispose itself creatively, then it inevitably becomes destructive. Here the destructive effects result in the overheating of these monoculturally planted trees.

Once the internal metabolic processes have been distorted through unnatural temperatures either received externally, or induced internally through excessive oxidation, then the plant's naturally ordained metabolism can no longer operate in a healthy fashion. In other words, if the natural standing-wave pattern of frequencies, which supports a particular manifestation changes as a result of an increase in internal temperature (see fig. 7.1), then, in the case of the tree, or human being for that matter, the new picture no longer represents that of 'healthy tree', but 'sick tree + parasites'.

As human beings we are generally considered healthy and do not have a 'temperature' when our body temperature is  $+37^{\circ}\text{C}$ . However, as soon as our temperature rises to say  $+37.5^{\circ}\text{C}$ , then we start feeling ill, perhaps a little dizzy, but at all events slightly feverish. Suddenly we are in a disease-prone condition. What has happened? A very minute change in temperature has occurred and we are sick; we are malfunctioning. Because we are sick, our internal temperature has altered to a temperature conducive to the development of a life-form that is otherwise alien to us.

At all times we are the carriers of most known diseases, it is just that they are dormant and remain so, because our healthy body temperature is unsuited to their existence and propagation. When we get a temperature for some reason or other, or we get a chill, then the body temperature reaches a level where bacteria can unfold and develop. The virus emerges from its crystalline state and becomes active and organic. But here Nature is very clever and, in order to dispose of these unwanted alien systems, the body raises the temperature even further to a level lethal to the bacteria or the germs, whose normal temperature

range may lie between say  $+38.2^{\circ}\text{C}$  and  $+38.6^{\circ}\text{C}$ . This is why, once a climactic temperature has been reached, the affected person often recovers very quickly.

From this it becomes clearly apparent that, like us, the tree does not sicken because of parasitic and fungal attack, but because its state of indifference has been disturbed and its condition of highest health and vitality disrupted. The tree thus attracts those parasites because the changed energetic vibrations, resulting in abnormally high internal temperatures, are conducive to their procreation and propagation. Parasites are therefore what Viktor Schauberger called "Nature's Health Police", whose job it is to remove all genetically degenerate organisms in order to safeguard the future. In the case of the tree, however, the principal cause of this genetic degradation is a total misunderstanding of the tree's responses to light and heat, which will now be addressed below.

### 27.3 Light- and Shade-Demanding Trees

The table [fig. 16.10] on p. 216 shows that there are two categories of tree labelled shade-demanding and light-demanding. Modern forestry practice does not recognise this, with dire consequences for the overall health of the forest. In its quantitative approach, contemporary forestry considers that if a tree grows rapidly, puts on a profusion of branches and gains quickly in girth, then it is getting value for money. What forestry is actually getting is quantity, but not quality for its money.

Through lack of understanding of the light factor and its associated effects of increased temperature, forestry has completely overlooked the reason for the increased incidence of disease, not only in logged natural forests, but more particularly in plantation forests, where shade-demanding species are exposed to the damaging effects of direct sunlight and heat almost from birth. But how can we determine whether a tree is a light-demander or a shade-demander? There are two principal ways:

1. Shade-demanding species generally have thin smooth bark for, being normally resident in the inner areas of the forest, they do not need to insulate themselves from the heating effect of direct sunlight. Light-demanding timbers on the other hand have thick, coarse, thermally insulating bark, which is Nature's way of protecting them from the same potentially harmful influences.

2. Shade-demanding trees grow additional branches on the trunk when exposed to light and heat, whereas light-demanders do not.

As an example of this, fig. 17.1 shows two trees on the author's property in Australia, one is a shade-demander (a) and the other a light-demander (b). The whole area shown in the photograph was covered over with dense *lantana* (which as an introduced exotic species goes berserk in hot climates) up to a height of about 4 metres. The trunks of both trees were therefore protected from the light of the Sun for the first 4 or so metres above the ground.

Since this area was only recently cleared for the first time after many years, the youngish shade-demanding tree had lived all its life with its trunk protected from the heat and light of the Sun. Six weeks after clearing operations, the shade-demanding tree (a) (see also fig. 17.2) started to grow some extra branches on the lower part of the trunk on the sunny side. It had to do this in order to protect itself from the new and unwanted heat, which disturbs the orderly flow of sap.

In most cases, therefore, when tree or shrubs are pruned and continually regrow branches quickly in those areas where they were cut off, you know that you are dealing with a shade-demanding species. The reason they put the lower branches on is not because they want the sunlight, but because they do not want it on the trunk. When sunlight bathes the trunk, all the metabolic processes within the tree are disrupted. The tree becomes overheated, the sap no longer flows as it should and the general structure of the tree becomes very coarse, leading to malformations, cancerous growths in the interior,

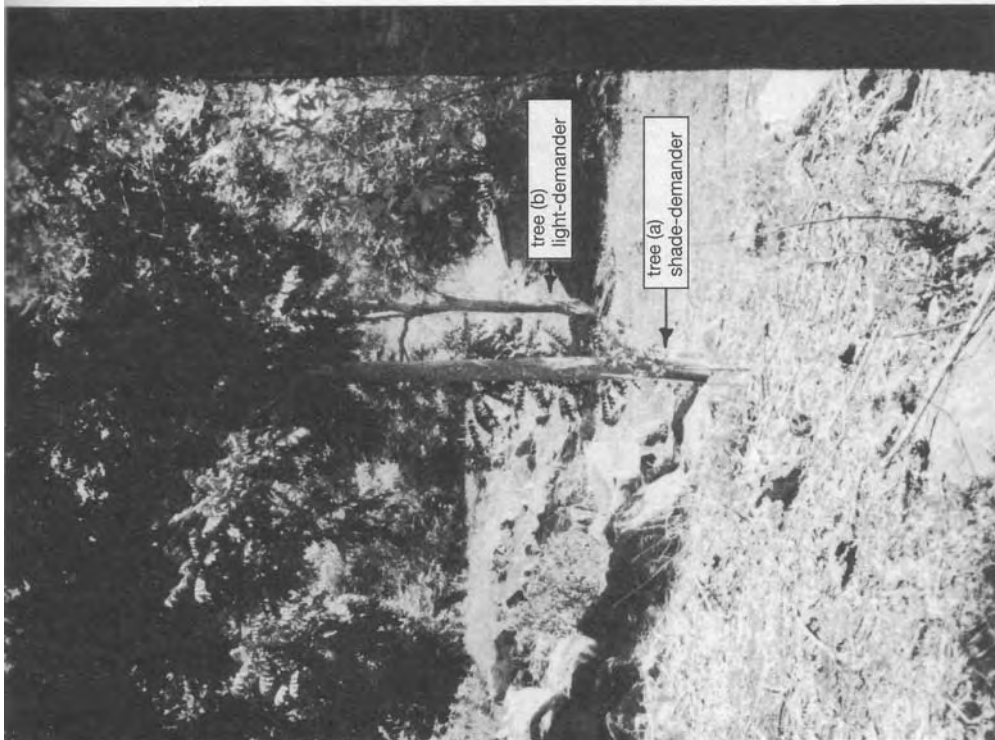


Fig. 17.1



Fig. 17.2 Six weeks after clearing the tree starts to grow more branches



Fig. 17.3 The left-hand side of the tree trunk is rough bark.

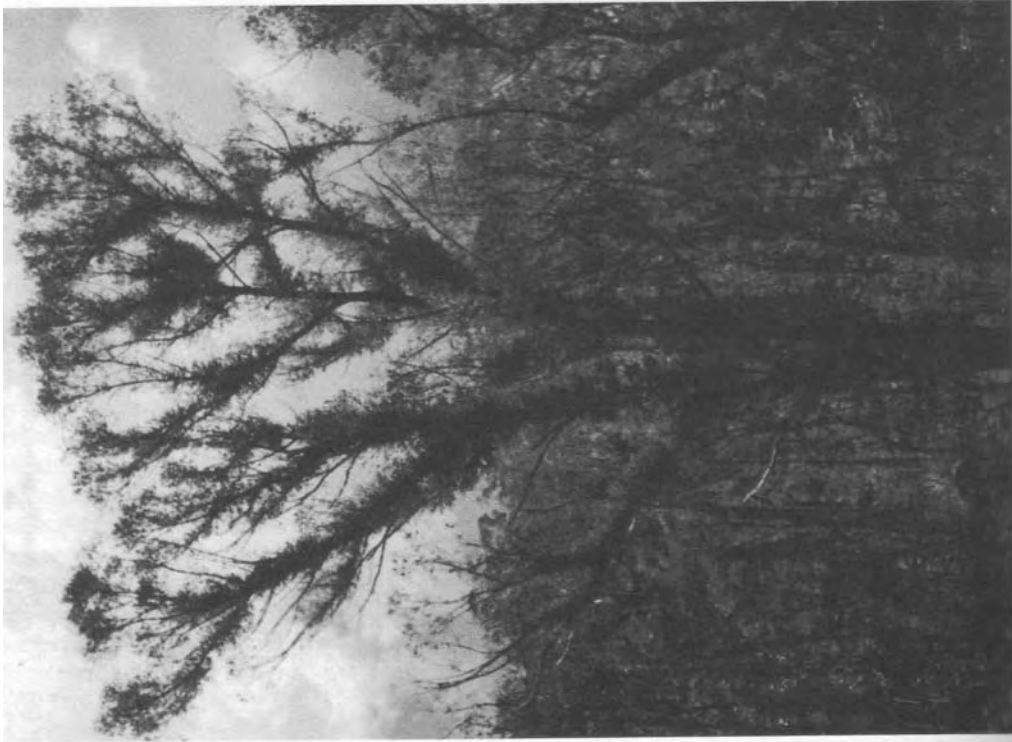


Fig. 17.4 A tree protects itself after a forest fire

and so on. Conversely, during the same period, the light-demanding tree (b) (see also Fir. 17.3) was not affected by the additional exposure, and put on no extra lower branches at all.

As with all other organisms, what is vital to every tree, indeed all vegetation, is the maintenance of an even inner climate, of its healthy state of 'indifference' or 'temperaturelessness'. If this is in any way disturbed, then the tree becomes disease prone. As far as they can manage it all shade-demanding trees, and under certain circumstances light-demanders too, will do everything they can to maintain or reinstate this temperatureless condition.

This is particularly evident after a forest fire and explains why trees that survive such a conflagration quickly cover themselves with a profusion of small shoots as shown in fig. 17.4. The fire has blackened their bark, so that, instead of reflecting the heat, it absorbs it and other radiation. Without the rapid restoration of protective cover the interior of

the tree would quickly overheat and the flow of sap would slow considerably and no longer reach the highest branches.

As a shade-demonder the pine or fir in fig. 17.5 would normally grow in dense forest with no other branches of any significance except those of the crown. Because it is much taller than its neighbours, it must once have been surrounded by trees of similar height but, because it had not yet grown sufficiently to be of any commercial use, it was left standing when the area around it was replanted.

What has happened to this poor tree is quite evident. At a fairly late stage in its growth, its protective surroundings have been removed, leaving it exposed to excessive light and heat. As a result it has had to divert the energies employed in upward growth in order to erect extra branches all the way down the trunk in self-defence. This malformed growth produces a very knotty timber, because an abnormal number of branches have to be grown in areas of the



Fig. 17.8 Beeches growing at the edge of the forest



Fig. 17.5. These shade-demander would normally grow in  
dense forest



Fig. 17.6. This shade-demander grows branches only on the  
sunny side





Fig. 17.7 This beech stoops its crown to protect itself from sun

trunk normally branch-free, severely disturbing the whole process of growth. Under normal conditions all the growth of such a tree would be concentrated in the crown, the trunk would virtually be free of branches and take on a cylindrical shape.

Fig.17.6 shows an evergreen conifer, where the branch development is very one-sided. Observing this with our conventional eyes, we would normally attribute the lack of branch-development on the left hand side to the fact that this area is shaded by other trees, i.e. because there is no sunlight the tree has produced no branches to catch it. This is not correct, however. The tree does not develop any branches because there is no sunlight from which to protect itself. On the outside, however, where there is sunlight, there is also a burgeoning development of branches and foliage.

The extent to which shade-demanders, as organic and therefore intelligent entities, are prepared to go to protect themselves is



Fig. 17.9 A small beech (arrowed) protects itself at the forest edge

shown in fig. 17.7. Here the lower branches have been cut off and the higher ones have subsequently folded themselves down towards the ground in order to shield the trunk. As far as the tree is concerned, this extra, unwanted growth sucks the energy from the tree and diverts it from its normal path. This downward curving protective movement shown in fig. 17.8 is also characteristic of shade demanders growing on the outer fringes of a forest.

Fig.17.9 on the other hand shows a very small beech tree (indicated by arrow), also a shade-demanding species, growing right at the edge of the forest. The profusion of small lateral branches all the way up the trunk is symptomatic of its fight to protect itself from the Sun and, although it may look very pretty, the tree is actually severely deformed. As a result the overall growth, and the quality of growth in particular, suffers to a greater or lesser extent.



Here a further parallel can be drawn between human beings and trees on a more psychological, behavioural level. The shade-demanding tree could be viewed as an introvert. Introverts are reserved and extremely sensitive to external influences. Their mode of expression tends towards introspection, mental activity (predominant development of the tree's crown) and they are inwardly preoccupied and absorbed. They need a certain shielding and protection, peace and quiet to develop to maturity and their full potential.

The extroverts on the other hand are represented by the light-demanders, the trees that can happily stand on their own, reflecting the extrovert's need for light and space around them. Their mode of expression tends towards the physically active, outward radiance (branch development) and they are less sensitive to their external environment. They need this outer interaction and exchange to grow. In other words, they are independent, outgoing individuals, who tend to be more capable of standing on their own feet without support.

## 17.4 Light-induced Growth

**D**endrology the branch of science related to the study of trees, is concerned with the analysis of the annual rings in trees in order to determine the climatic conditions under which they grew. Some trees, such as the Sequoia gigantea of northern California, which grow to heights in excess of 300 feet (91 metres) and live for 2,000 years or so, provide dendrologists with an accurate record of climatic changes and the trees' response to them. The period where the annual rings are more widely spaced are considered 'good years', because of the quantitative approach to analysis. If they are more closely set they represent the 'bad years', when life for the tree in question was supposedly more of a struggle.

While such analyses may accurately record variations in ambient temperatures over a period of time, the assumption that a tree had to struggle for survival or not is generally incorrect. The true interpretation of the spacing of the annual rings is quite the opposite - where the spacing is larger the tree had

greater difficulty in growing and where smaller the growth was healthy.

This crucial factor, neglected in all contemporary forestry, is best explained by demonstrating the difference between natural and light-induced growth in shade-demanding timbers. The photograph from Viktor Schaubberger's book, *Our Senseless Toil* (fig. 17.10), compares the girths of a plantation tree and two naturally grown trees. As can be seen, the separation between the annual rings in the light-induced growth is far larger than in the naturally grown timbers, in which these are barely perceptible. All three trees are roughly the same age, but substantially different in quality.

Because the initial growth of the naturally grown trees took place in very diffuse light under the protection of the mother-tree and in the proper soil conditions, the annual rings are very close together, the sap-ducts are virtually straight and the timber has what might be termed a 'resonant' quality. Incidentally this extremely fine-grained timber is the sort of timber that Stradivari used to make his famous violins. The actual timber that he used was mulberry wood that had fallen into streams in the southern Italian Alps.

This wood had been transported in cold naturally flowing water and had lain in it for quite a considerable period. Its high quality confirms Viktor Schaubberger's assertion that when materials are transported in natural streams or double-spiral pipes their quality can be significantly improved. Just lying in this energised water the quality of the timber was enhanced, which is why the Stradivari violins achieved their exceptional tone-colour

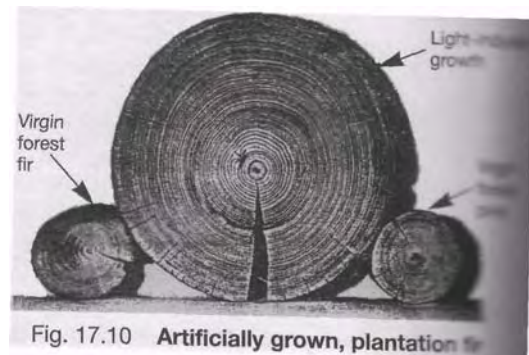


Fig. 17.10 Artificially grown, plantation fir

The effect of excess light and heat on the growth of a shade-demonder is schematically depicted in fig. 17.11. The annual rings on the sunny side of the trunk are very widely spaced, whereas on the shaded side they are very close. Because the metabolic processes taking place in the shaded area have not been disturbed, the wood has not been forced to expand with heat. On the left-hand, shadow side, the diurnal temperature fluctuation is relatively small and on the right-hand, sunlit side, is much larger due to the exposure to light and heat. These large extremes of temperature are not conducive to the uniform and regular growth found on the left-hand side.

An example of the depletive effects of deforestation is shown in the box overleaf.

### 17.5 Other Man-made Depredations

part from the well-documented effects of acid rain, which will not be addressed here, there are other man-made factors which affect tree growth. Here the use of the term 'man-made' is quite specific and refers to one particular gender on this planet as will become apparent in the final chapter.

According to research by a German electrical engineer, Dr. Wolfgang Volkrodt, a tree is a communication system that functions at much lower energy levels than high-frequency, short-wave emissions in use

throughout the world's communication systems. If a tree as a communication system is forcibly overloaded with stronger signals, which were not present 20-30 years ago, for example, then its whole internal communication and organisational system becomes incoherent. This dissonant artificial electromagnetic stimulus affects the proper function of the bioelectrical and biomagnetic circuits in the tree's cells, resulting in wrongly programmed growth and, if the tree is exposed to ultra short-wave frequencies and transmissions long-term, it is destroyed.

The chief culprit in this additional scourge of the forest and the one responsible for the alarming death of the forest in Germany, (or 'Waldsterben' as it is called) is radar. Dr. Volkrodt's survey of 'Waldsterben' determined that it was most widespread around military and civilian airfields and in frontier regions, where the use of radar was greatest. The impulse strength of civilian and military radar installations amounts to about 20,000,000 watts, the radiation limits in the West being about 10,000 times stronger than in Russia. Each sweep of the radar beam the tree experiences as a periodic whiplash from which it cannot escape. In Canada, for example, large tracts of forest have been destroyed by the DEW-line (Defence Early Warning) radar installations.

Microwave directional communication transmitters are equally destructive, having a signal density of 100 watts/cm<sup>2</sup> near to the

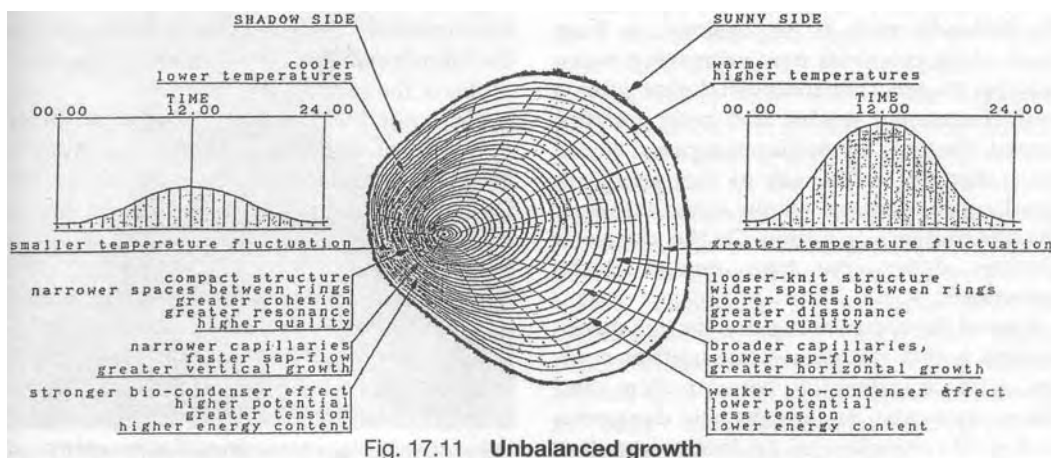


Fig. 17.11 Unbalanced growth

Some mention should be made of the climatic effects of deforestation. The transpiration rate of an average rainforest tree, for example, is about 600 litres of water per day. Assuming 200 trees per hectare of rainforest, this represents a water loss to the atmosphere of 120,000 litres per hectare (ha) per day, or a loss in potential rainfall of  $12\text{mm/m}^2$  per day. In other words, if all the water transpired from a single tree were precipitated to the ground within the ambit of its drip-line, then 12mm would be delivered daily per square metre of ground surface.

Not all forest is rainforest and in Algeria, with a climate similar to much of Australia, a 14 metre high eucalypt delivers 375 litres of water a day to the atmosphere through transpiration [data from Sahara Challenge by Richard St. Barbe Baker]. According to the 1977 Australian Forestry Report, the quantity of hardwood removed annually since 1973 amounts to  $13,819,000\text{m}^3$ . Assuming an average yield of  $1.5\text{m}^3$  of useful timber per tree this = 9,212,667 trees. At say 150 mature trees/ha, the area of tree cover cleared annually = about 61,420 ha or  $614.2\text{km}^2$ . On the basis of 150 trees/ha, the daily

transpiration loss at 375 litres/tree = 56,250 litres/ha or  $5,625\text{mm/m}^2$ , totalling  $2,054.6\text{mm/m}^2/\text{year}$ . Over the full 61,420ha cleared annually at a rate of say 168.25 ha/day ( $61,420\text{ha}/365$  days), the cumulative loss over 365 days would amount to about 632,150 million litres or 632.15 million tonnes of water per year. If this felling rate has been constant over the last 22 years, then discounting any replanting, the total loss of potential rainfall due to deforestation would total about 13,907,345.2 million litres or 13,907.3 million tonnes of water, or an area 13.9km wide, 1,000km long and 1 m deep. Not an insignificant amount of water by any standards for a dry continent. When the trees are removed and people wonder why they are stricken by drought then, in view of this, it easily becomes understandable. Replanting of trees and global reforestation on a massive scale is therefore imperative at this late hour if humanity is to be saved from disaster. As for the necessary work-force, there are millions of people available for such work. In actual fact there are not enough unemployed at present to do all that needs to be done.

transmission tower. In order to check the efficiency and proper function of a microwave transmitter, or a high-tension power-line for that matter, a neon tube is held up parallel to the direction of transmission. If it lights up, the system is in order. Aware of all these pernicious effects as a result of his studies, Dr. Volkrodt made it his business to keep track of all proposed new microwave transmission towers. He discovered that after a new microwave sender had been commissioned, the trees on the slopes exposed to and lying directly in the path of the signal suffered severe damage within a few weeks of the transmitter's operation. On the reverse or shadow slopes, the trees tended to be unharmed.

One of the apparent reasons for this deterioration is that microwave transmitters operate with wavelengths between 2cm and 50cm, exposure to which has dangerous biological consequences, i.e. thermal or other

effects such as electro-smog. Microwave have energetically chaoticising and disruptive effect, triggering changes in crystal structure such that the elements dissolve and are reduced to a lower state of complexity. Domestic microwave ovens operate on similar wavelengths to radar and produce similar decomposive, disintegrative effects due to the vibrational heat they generate in the molecules of the irradiated substance.

The natural wavelength of hydrogen, however, is 21cm and well within the bandwidth of current microwave transmissions. As hydrogen is one of the constituent atoms of the water molecule it is therefore quite possible that it is greatly disturbed or even destroyed due to the excessive excitation arising from internal microwave-induced heading. In the case of the tree this leads to the breakdown of the structure of the sap, which like our blood, is about 80% water, while at the same time increasing the quantity of

available oxygen within the tree, leading to wholly unnatural metabolic acceleration. Unfortunately for such a tree, it is rooted to the spot and cannot escape the radiation emitted by microwave towers and high-tension transmission grids.

As a case in point, the tree I photographed in November 1987 near Munich in fig. 17.12 has evidently been exposed in its later life to constant irradiation by nearby civilian and military radar as well as to microwave transmissions, which have now become the norm for almost all telephonic communication, television, etc. As we can see its growth is chaotic and it is grossly deformed. Although human beings are more mobile, if they too are constantly exposed to such radiation, then they too become increasingly prone to blood disorders. In several recent scientific studies it has been shown that people living in close proximity to high-tension cables have a higher than normal incidence of disease.

That this internal microwave-induced

warming is becoming more widespread and accelerating could be inferred from an ongoing study of the space between the annual rings of Huon pines carried out by the Commonwealth Scientific & Industrial Research Organisation (CSIRO) in Australia, which showed that in the last 25 years the increase in tree ring width has risen more rapidly than in any other period since 900AD. What happened then is not known, but it may have been a period of large volcanic eruptions or there may have been a massive increase in cosmic radiation for some reason.

The article in question "Global warming rings true"<sup>4</sup> attributes this expansion to increases in ambient atmospheric temperature which may well play a role, but fails to take into account the amount of radio, television, microwave, radar and other forms of electromagnetic transmissions that, over the last 25 years, have reached almost saturation proportions. Nowhere on this planet today is any organism free of permeation and penetration by the disturbing vibratory influences of these insidious radiations. To this can also be added the less publicised radioactive leakages from nuclear power stations and waste dumps, to say nothing of the baleful rotting corpses of Russian nuclear submarines. It would therefore seem far more likely, in the light of Dr. Volkrodt's research, that the increase in tree ring width in these Huon pines is due to electromagnetic rather than thermal effects.

The hope for the future of forestry, however, lies in the involvement of concerned individuals and ecologically-oriented citizen groups, rather than government organisations which rely on so-called 'expert' advice. As we have seen, in relation to Viktor Schaubberger's battle for the Rhine and the subsequent construction of unnatural hydraulic structures, these 'scientists' have a vested interest in supporting those in power. If Viktor Schaubberger's knowledge and the theories and practices of these various citizen organisations were combined and implemented on a global basis, then much would be done towards turning the presently ebbing tide of life on this planet.



Fig. 17.12 Tree near Munich damaged by radar

In Australia and in many other countries around the world, for example, Permaculture<sup>5</sup>, an environmental movement founded by Bill Mollison and David Holmgren in Australia in 1974, has been growing enormously. The theories and practices espoused by Permaculture encompass the creation of an integrated environment at both large and small scales and, in their practice have proved very successful. It is a particularly 'hands on' approach, designed for individuals and families from all walks of life and is therefore, well within the means and capacities of those interested in enhancing their own immediate environment.

Apart from improving the quality of life in so-called civilised countries, the application of Permaculture methods in countries stricken with enormous poverty has made it possible for many people who would otherwise have perished in the most miserable conditions to survive with increasing abundance and quality of food. In Permaculture all use of artificial fertilisers is forsworn and natural methods of composting and fertilisation only are employed. If the implementation of this well thought-out system was more widespread it would begin to have a significant effect first on local and then on more general conditions.

Permaculture seeks to replicate as far as possible the biodiversity of plant types found in Nature, rather than the orderly gardens of modern fashion. In these artificially created nat-

ural habitats, agriculture, silviculture, animal husbandry and whatever water is available are combined into a harmonious and sustainable whole. Species are chosen according to which grows best in association with another. Shelter belts and groves are placed in order to provide the optimum conditions for growing vegetables along with other plants and pastures for domestic animals in the prevailing climatic and soil conditions. Each family or group is thus provided with the means to become more and more self-sufficient.

Reafforestation is now required on a massive scale globally. Charles Peaty<sup>6</sup>, of Western Australia, has developed a system for the successful mass planting of trees in arid conditions. In view of the vast areas of existing deserts and their rapid expansion and incipience in previously productive regions due to the near total removal of tree cover, Charles Peaty's methods most certainly provide a viable solution. These systems actually work, and there is now no valid reason why any government threatened by desert and drought should not immediately implement them, if it is truly concerned for its economy and the well-being of its people. With this system Charles Peaty guarantees a survival rate of 92% and, over recent years, has planted 60,000 million trees in Kuwait, Pakistan and Western Australia. If any climatically and agriculturally restorative measure is worthy of United Nations and World Bank support this one qualifies par excellence!

### Notes

1. "The Dying Forest" ("Der sterbende Wald"), by Viktor Schauberg, Pt.I: Tau mag, Vol.151, Nov.1936, p.30.
2. Implosion mag, No.78, p.29.
3. From the Schauberg archives.
4. "Global warming rings true", New Scientist, Sept.1991.

5. Permaculture Inst, P.O.Box 1, Pyalgum 2480, NSW, Australia. Permaculture Intern'l Ltd., P.O. Box 6039, South Lismore 2480, NSW, Australia.
6. Charles Peaty, B.Sc.(Forst'y), Afforestation Ptyl 5 Luth Avenue, Daglish 6008, W.Australia.

## THE METABOLISM OF THE TREE

All the processes that take place in water are reflected once again in the individual forms of vegetation.<sup>1</sup>

Viktor Schauberger

### 18.1 The Movement of Sap

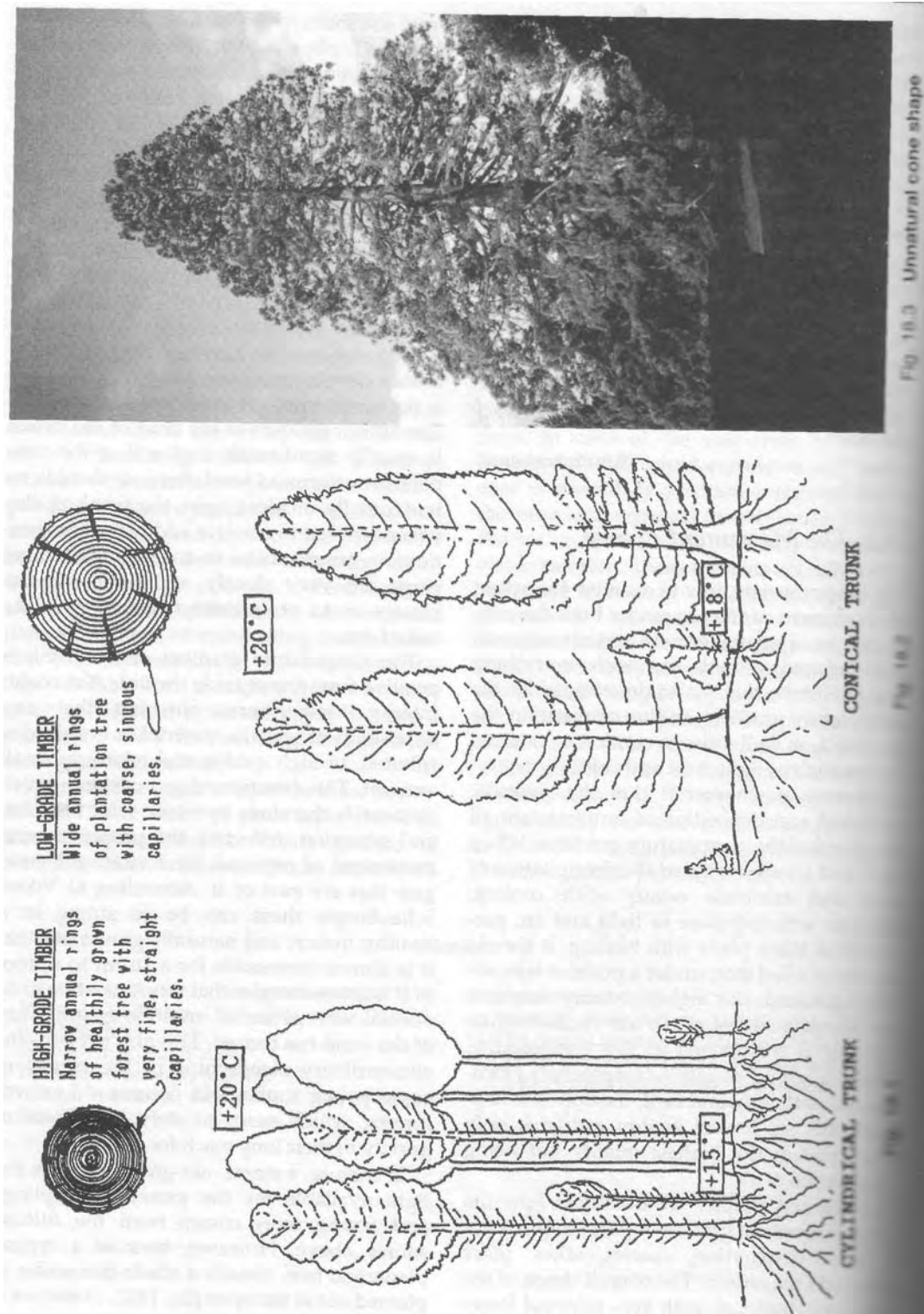
It is appropriate now to examine the actual movement of the sap under both the conditions of natural growth and of unnatural light-induced growth. As with everything else in Nature, this is also determined by the temperature gradient, in this case within the tree itself, as well as in its relation to external factors such as light, heat and cold. We saw in chapter 9 that the solution, transport and deposition of nutrients are all functions of the temperature gradient. When light and air are excluded the precipitation of salts and minerals occurs with cooling, whereas with exposure to light and air, precipitation takes place with heating. It should also be recalled that, under a positive temperature gradient, the highest quality nutrients are precipitated last as the sap cools towards +4°C or is maintained at this temperature. Under a strong negative temperature gradient and with light and heat, the opposite happens and the lowest quality nutrients only are expelled, the highest quality not being transported at all.

In the last chapter we described how the natural course of growth and development of a shade-demanding species takes place largely in the crown. The overall shape of the trunk is cylindrical, with very minimal lower

branch development (fig. 18.1), because there is no need to protect the trunk against light. The air temperature at the level of the crown is usually significantly higher than the temperature at ground level. Because there is no horizontally incident light, the trunk is also never exposed to massive and abrupt fluctuations in temperature; as a result the annual rings are very closely set, sometimes so closely as to be indistinguishable with the naked eye.

The temperature gradient of the trunk is positive from the outside inwards, the cooler interior temperatures ensuring that any deposition of growth material is evenly distributed, of high quality and relatively small amount. The direction of growth and development is therefore upwards with little lateral extension, reflecting the proper, natural movement of sap and the levitational energies that are part of it. According to Viktor Schauberger these can be so strong in a healthy, mature and naturally grown tree that it is almost impossible for a storm to uproot it. It is these energies that return the tree to its normal vertical stance once the gusting fury of the wind has passed. This also explains the extraordinary slenderness of the trunks of some young saplings in natural old-growth forests, which seem to defy the forces of gravity in their long reach for the sky.

In mature, natural, old-growth forests the light available for the growth of saplings and young trees comes from the diffuse source above. However, because a typical plantation tree, usually a shade-demander, is planted out in the open (fig. 18.2), to survive it





has immediately to cope with unnatural levels of illumination and heat, covering itself as quickly as possible with branches right down to the ground at the expense of its upward growth. Its form is cone-shaped, sometimes excessively so; as fig. 18.3 shows, there is massive development of branches on the lower part of the trunk. On closer inspection it can be seen that the distribution of branches is unbalanced, that there is a greater density of branches on the sunny, left hand side of the trunk and, although this shape may be appropriate for a Christmas tree, it is actually grossly misshapen.

In a plantation setting, as a tree grows it eventually receives a certain degree of protection from its neighbouring trees, the need for lateral branch development diminishes and the predominant direction of growth is once again upwards. However, in the conventional management of plantation forests, after the prescribed period of rotation, the trees are selectively thinned, those considered suitable as constructional timber going to the sawmill and the remainder to the pulp-mill.

The effect of this thinning out on the remaining trees is disastrous! Once again, and very suddenly, they are exposed to excess heat and light. In order to survive, all the growth energy is directed laterally towards the development of branches all the

way down the exposed part of the trunk, predominantly on the sunny side, producing a second profusion of knots, shakes and twisted, spongy grain. Note in fig. 18.4 the large variations in the space between the annual rings and the inner and outer coarseness in the grain on the trunk cross-section, the healthiest growth in this instance having taken place roughly during the middle third of the tree's life, when the annual rings were closest together. In the early stages of development this 33-year old tree was obviously exposed to unnatural levels of light and heat. As its trunk gradually became protected from these excesses by its companion trees, the annual rings drew together, only to expand again abruptly and hugely when this protection had been removed.

Any resonant timber would only be obtainable from the area of closely spaced rings, but a board cut from the full width of the trunk would suffer non-uniform shrinkage. In terms of their suitability for constructional purposes, the naturally grown, narrow-ringed timber is far superior, more consistent, firm and regular in its structure, and far less prone to warping or irregular shrinkage. Plantation timber or shade-demanders suddenly exposed to light in natural forests, on the other hand, exhibit not only irregular spacing of the annual rings, but the heart of the tree is frequently off-centre and prone to the development of heart-rot and ring-shakes, the latter being cleavages along the lines of and between the annual rings.

Moreover, not only does the spongy consistency of the inter-annular spaces result in excessive and unequal shrinkage, making such timber virtually useless and totally unsound as strong structural material, but the associated abnormally high internal temperatures also provide an ideal breeding ground for bacteria and parasites, to which the tree will eventually fall victim. All these necrotic phenomena are what Viktor Schauberger referred to as 'tree cancer' and is evidently what afflicted the tree in the two photographs in fig. 18.5, which has suffered a lethal infestation of heart-rot as shown by the fungal growths (arrowed) half way up the trunk, causing its fracture.

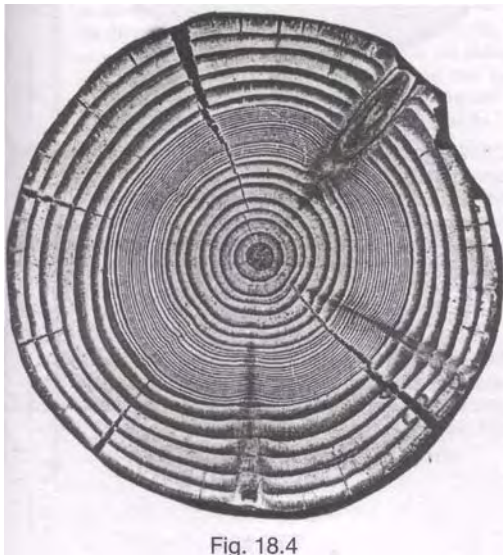


Fig. 18.4





**Disease in shade-demanding timbers through excessive exposure to sunlight**

An example of the damage inflicted on a shade-demanding beech tree, when it is planted out in the open in plantation forests and exposed to the full impact of direct sunlight in its early youth. Such trees can only grow and develop healthily under the protection of the mother-tree.

← The upper part of the trunk and the whole of the crown have broken off about half way up the trunk.



Cross-section through a 60 year old beech, showing the development of wide, oversize, annual rings during the first 25 years of its growth. The structure of the wood between such large annual rings exhibits a spongy texture, which is highly absorbent and leads to heart-rot.



← Tree in the adjacent photograph has suffered a major attack of heart-rot, as evinced by the fungal growths (arrowed) on the trunk, which caused the fracture about half way up.

Fig. 18.5

According to Viktor Schauberger the actual movement of the sap is not through osmosis as is presently supposed:

On many occasions I have already stated that the rising of sap in trees cannot be explained by the physical factors hitherto put forward alone, such as the effect of the external air pressure, etc., but that its explanation is to be found in the on-going metabolic processes in constant pulsation in every cell of the tree and is therefore a result of the vital activity of the capillary tree-cell. Professor Kurt Bergel of Berlin came to similar conclusions in relation to the activity of the heart and the blood in animal life.<sup>2</sup>

Apart from the animating pulsation, the healthy movement of sap is also encouraged by the extreme fineness of the capillaries to be found in a completely naturally grown tree (fig. 18.6). The diameter of these capillaries is tiny. With slight warming the carbonic acid contained in the water and sap is converted into carbon-dioxide and forms bubbles, which completely close off the full bore of the capillary, and actually pump the water with the nutrients and the sap right up to the furthest extremities of the crown. These bub-

bles fill the capillaries like corks and, as they rise, push the intervening packets of water, sap, etc, ahead of them.

In this way the sap can be raised up the towering 91m (300ft) height of for example, a Tasmanian Mountain Ash, the tallest hardwood in the world. The upward movement of sap can neither be due to osmosis, whose absorbent raising action is limited, nor to mechanical suction alone, however, since it has long been established that a column of water cannot be drawn up higher than 9.81m (32.18ft).

The ascent of sap is a daytime process. The tree breathes out oxygen during the day through the process of photosynthesis, but at night the direction of movement reverses and it breathes in oxygen (like we do) in order to provide for the development of the root-system and the lignification of the trunk. When the Sun sets the temperature drops and the level of dynamic energy diminishes.

This initiates the retreat of the sap, which now becomes specifically denser through cooling and is drawn down in the direction of the sinking Sun and the root-zone. The sap ducts and capillaries in the crown are evacuated and a biological partial vacuum is created as the  $\text{CO}_2$  gas-bubbles condense and begin to sink. Together with the sugars and starches formed during daytime photosynthesis, this suction draws down oxygen, nitrogen, sugars, starches,  $\text{CO}_2$  and other trace-gases through the minute stomata and pores in the leaves and all the way down to the hair-roots. Here they nourish the life-functions of the tree during the night and provide the material for its structure-building activities, the formation of the annual rings and the lignification of the inner fabric of the tree as a whole. When the crown-zone and the trunk cool down, the root-zone warms up and vice versa. In this way the soil is kept warm during the night and in winter, and cooler during the day and in summer. As a result, excessive fluctuations in the ground temperature, which are detrimental to the microorganisms in the life-giving layer of humus, do not occur.

The same process applies to light-demanding timbers as long as the light is not

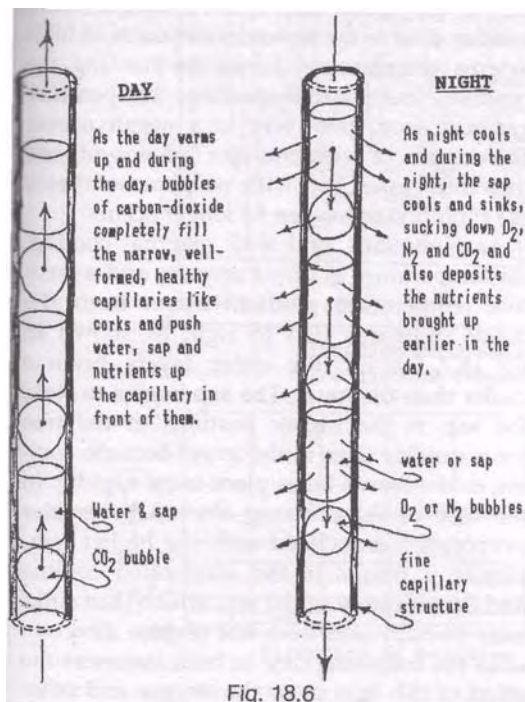


Fig. 18.6

excessive, because they have a protective mechanism in the form of very thick bark or, in some cases, a light-coloured bark with a high reflective factor.

Figs. 18.7A and B show these activities in greater detail. The so-called 'cambium layer' could be viewed as a 'proto-annual-ring' and at the same time as a dielectric, as will be addressed later. This active zone is where the growth of the tree takes place through the interaction of two variously constituted and electrically charged fluids, i.e. the negatively charged phloem containing oxygen, carbon-dioxide, nitrogen, etc, flows down the inner side of the dielectric, whereas the positively charged xylem, containing ionised minerals, salts, trace-elements, carbonic acid or  $\text{CO}_2$ , etc, flows up the outside. Between these two streams and through their interaction, the proto-annual-ring is transformed into a proper annual ring. These annual rings carry within them the imprint of the life-experience and history of the tree.

This whole process takes place in darkness under the protective cover of the bark so that, as far as possible, disturbances to this delicately balanced metabolism, through the excessive irradiation and increased temperature of direct sunlight, are avoided.

## 18.2 Temperature Gradients in the Tree

Here too temperature plays a major role. The active areas of growth in the outer peripheral zones of the trunk and branches require a certain warmth and level of energy to maintain the various formative elements in a productive, ionised and fluid state. All healthy processes of combination and re-combination taking place there, are wholly dependent on the orderly configuration and relative proportions of the temperature gradients.

With a positive temperature gradient from the outside inwards during the day as shown in fig. 18.7, C, the cooler more internal sap rises faster and carries the finest nutrients up to the top of the tree. This is for the highest quality growth, in the foliage, small green shoots, flowers and reproductive elements.

This upward flow can be as fast as 3m per hour, or 50mm per minute, as recorded by Viktor Schauberger. The lower quality, coarser nutrients present in the outermost layers of the cambium ring, which are required for the structural formation of the tree, can only be carried upward as far as their degree of coarseness permits, the coarser being deposited earlier in the formation of the trunk, the finer later in the branches. Both the graduation of quality and the height to which these elements are raised are dependent on temperature and the extent to which the negative temperature gradient, in its function as depositor or precipitator, is active from the outside inwards.

As the morning progresses the overall temperature of the atmosphere rises, causing the point of intersection between positive and negative temperature gradients within the tree to shift to deeper levels. The sap-flow begins to slow down and, according to their quality the various positively charged nutritive elements are held in near stationary suspension at various heights to await the arrival of the negatively charged elements from above. This may be why, for instance, the oxygen production in the Amazonian forest ceases towards midday. Due to the rapid development of high external temperatures during the morning, the positive nutrient-transporting temperature gradient soon gives way to a negative one. The uplift of elements for photosynthesis therefore ceases and with no photosynthesis, the evolution of oxygen no longer occurs.

As night falls, and with external cooling, the temperature gradient reverses and a positive temperature gradient arises from the inside outwards (left to right as shown in fig. 18.7, C), i.e. the outer layers become cooler than the inner. The sap begins to sink, the sap in the higher portions of the tree more quickly than in the lower because cooling in the crown takes place more rapidly. In the case of the Amazon above, the greater evaporation associated with the higher temperatures results in the accelerated cooling and densification of the sap, which then sinks after midday and does not reverse direction until the following day. In both instances the effect of this is to draw the oxygen and other

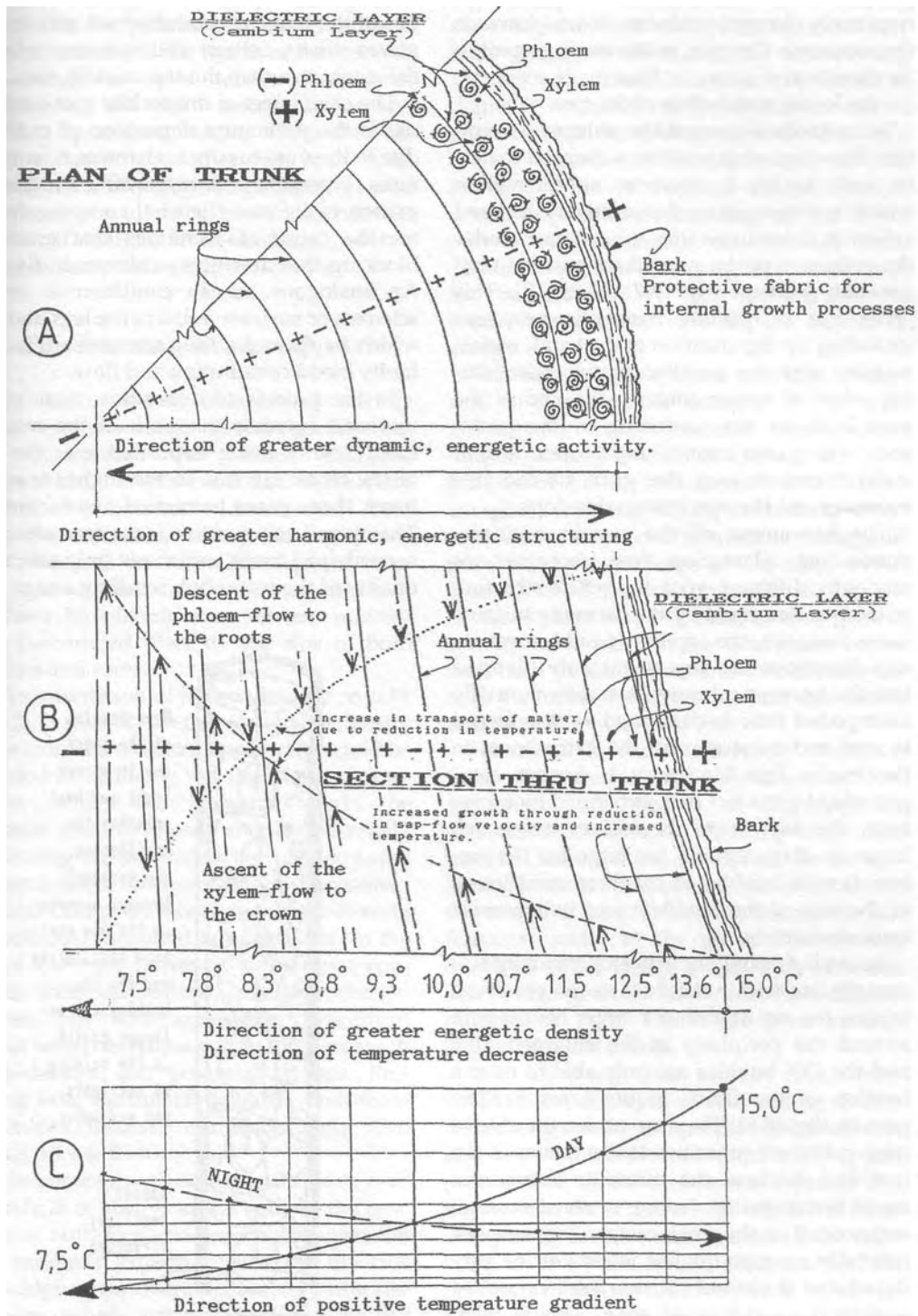


Fig. 18.7

gases and substances contained in the negatively-charged phloem down towards the root-zone. Oxygen, as the forcing agent in all growth and decay, is thus made available for the lower metabolism of the tree.

In its gradual descent the phloem encounters the suspended positively-charged material with which it interacts, an interaction which is enhanced as the positively charged xylem is drawn towards the exterior under the influence of the prevailing positive temperature gradient (fig. 18.7, A and B). This gives rise to various metabolic processes including the lignification of the trunk which, coupled with the densifying and consolidating effect of winter cold, by the end of the year leads to the hardening of the proto-annual-ring into annual ring proper. It is at night therefore that the girth of the tree increases and the root system develops.

The movement of the sap in a shade-demanding plantation tree, however, is markedly different. With the whole structure of the tree deformed by the necessity to grow more branches, the sap that would normally rise directly to the top is not only diverted into the unwanted branches, but its normally unimpeded flow is dislocated as it is forced to curl and twist around the extra knots in the trunk. This hindrance is further compounded by the fact that, expanded by excess heat, the sap ducts themselves are much larger in diameter and too large for the carbon-dioxide bubbles to fill them completely, as the size of the bubbles does not increase commensurately.

Instead of spiralling upwards virtually in a straight line within the duct, as in cylindrical trunks, the sap describes a larger helical path around the periphery of the enlarged duct and the CO<sub>2</sub> bubbles are only able to raise a fraction of the fluids required for healthy growth (fig. 18.8). They are no longer able to raise sufficient quantities to the crown of the tree and, because the nutrients themselves are of lower quality, having evolved through sub-normal or abnormal metabolic processes, naturally no high-quality wood can be produced and the life of the tree itself cannot be sustained for the usual span. This is what occurs with die-back. The sap is no longer

carried to the top of the tree or to the extremities of the branches and die-back sets in. The places where foliage still sprouts indicates the extent to which the sap can still rise.

The chief effect of this feeble movement of sap is the premature deposition of nutrients due to the unnaturally high internal temperatures. These are also responsible for the formation of inferior chemical compounds and are the cause of accretions that gradually block up the sap-ducts as shown in fig. 18.8. An analogous human condition is arteriosclerosis or varicose veins in the legs and feet, which happens for the same reason, namely faulty blood constitution and flow.

In the process of deposition these coarse materials increase the girth of the tree, the most inferior being deposited near the base of the trunk for, due to the higher temperatures, they cannot be carried any further up. The overall effect of this is the formation of a cone shaped trunk, which not only affects the quality of the wood but, recalling image 111 in

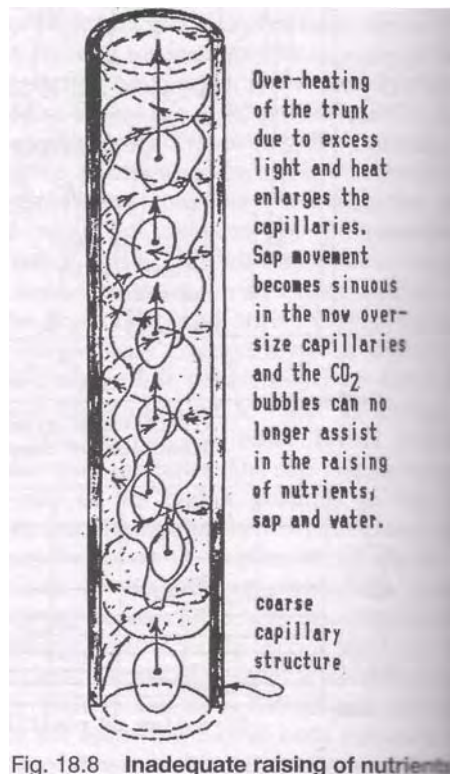


Fig. 18.8 Inadequate raising of nutrients



Viktor Schauberger's diagram in fig. 16.8, also distorts the pathways of the immaterial energies essential to the health of the tree and the atmosphere as a whole. Instead of strengthening the tree's vertical stance and spiraling up to great heights where they are further endowed with ethericities in the form of dynagens and qualigens, they are scattered unproductively to the four winds. With its levitational energies thus weakened, such a tree more easily falls victim to storms.

### 18.3 The Tree as a Bio-condenser

A full discussion of trees cannot merely entertain what is seen externally, but must incorporate the unseen energetic aspects which, as has been said before, are primary; the externally manifested form being the secondary effect. Having previously discussed the tree's biomagnetic force field, here we shall look at the way in which the tree's bio-electric energies are increasingly potentiated towards the tips of both branches and roots.

In the discussion of bio-condensers on p.89 (sec.6.2), it was shown that the charge density on one side of a dielectric membrane could be amplified by reducing the size of the charge-surface, while the potential could be increased simultaneously and exponentially by reducing the separation between opposite charges. It was also seen that, with concentric, spherical charge-surfaces, the charge-density and potential increased automatically. In the case of the tree, however, we are not concerned with concentric, spherical charge-surfaces, but with concentric, cylindrical ones, in which the same automatic increase in charge-density and potential applies. Proceeding from the outside inwards, both these magnitudes increase correspondingly (See figs. 6.8, 18.9 & 18.10).

While some growth occurs in the more central body, it is always at the ends of the new shoots of both root and branch alike that the most energetic growth occurs. As the tree grows higher, its overall diameter naturally decreases, which automatically reduces the distance between the annual rings. On reach-

ing the top of the tree, they are extremely close together and the potential extremely high. Moreover the capillaries transporting the sap are almost infinitesimally small in diameter, so that the only substances that can pass through and along them are the very highest qualities of nutritive material and energies. This is because coarser matter, which goes towards building up the lower part of the tree, cannot pass through them. Therefore, around the periphery of the tree, not only are the very finest sap vessels to be found, but also the very highest quality of energy.

This harkens back to the previous discussion of homeopathic dosages where, with virtually non-existent material, a tremendous output or reaction can be effected. It is also the area of the tree which receives the highly energised drops of falling rainwater, which represent a direct and immediate transfer of pure energy and charge or life-force, which after all is all that energy really is. Thus it becomes clear why the most intense growth activity takes place at the extremities of the tree, both in the crown and in the root system, the former being an outward movement and the latter an inward one.

However, if these extremely sensitive, finely structured layers of densation and bio-condensers are pierced or disturbed by dissonances, excessive warming and other harmful factors, then the bio-condenser collapses, heart-rot and other diseases set in and the tree dies. In other words, the minute differences crucial to the life and continuing existence of the tree, through which life was able to emerge in the first place, have all been reduced to zero. There has been another biological short circuit.

This life-charge has actually been measured in experiments carried out by Walter Schauberger using a multiplex galvanometer and two insulated metal (zinc and copper) probes. One of the probes was inserted into the heartwood of the trunk, while the other was placed at the outer surface of the cambium layer. By the careful adjustment of the positions of their respective points, relatively high voltages were detected. Indeed Walter was able to obtain voltages sufficient to light

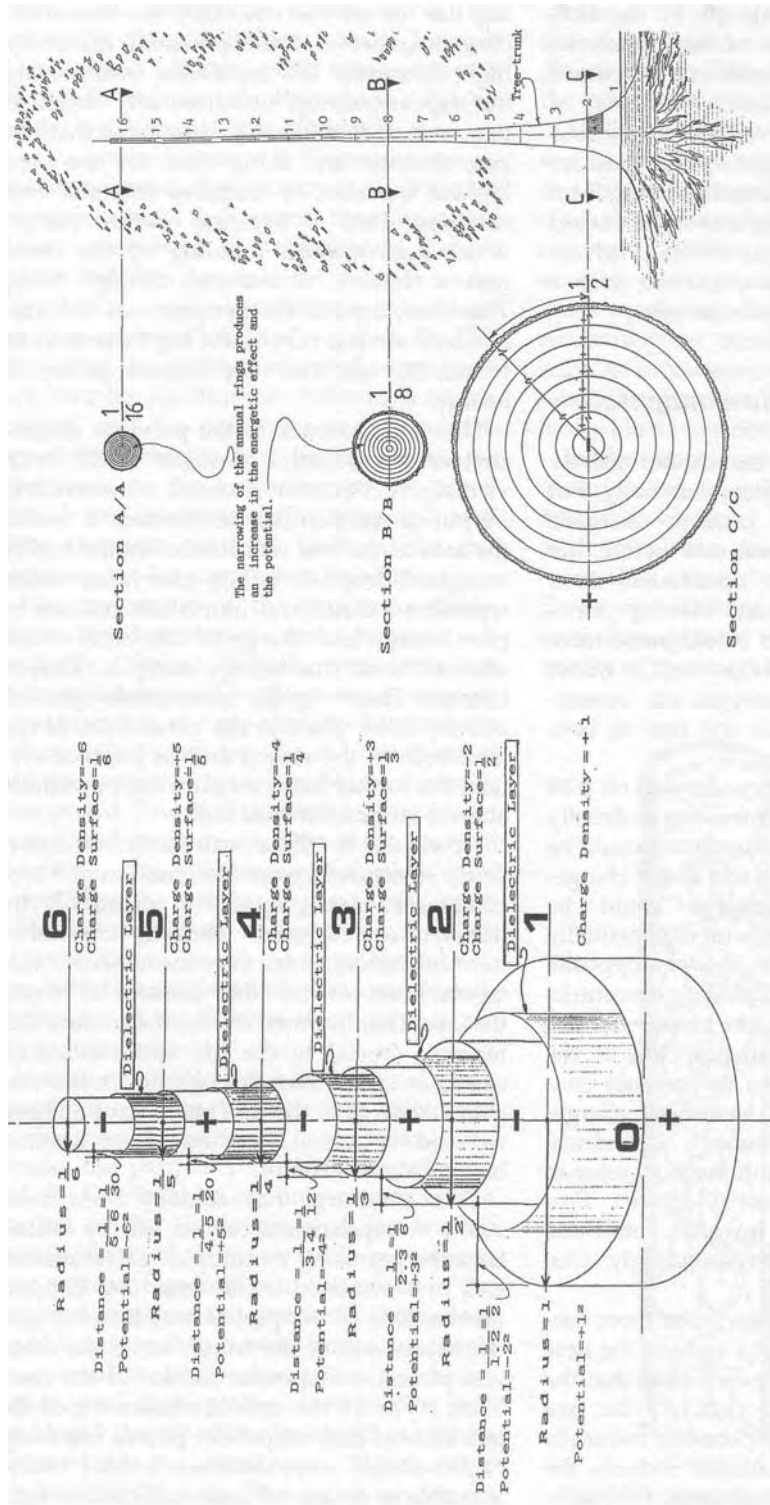


Fig. 18.9 Hyperbolic bio-condenser principle

The tree as a bio-condenser with a series of concentric, cylindrical, charge-carrying plates separated by cylindrical dielectrics is illustrated in fig. 18.9, the latter being indicated with vertical hatching. Elaborating this, fig. 18.10 shows enlargements of three cross-sections - A/A, B/B and C/C - through the trunk of the tree on the right hand side of the diagram and depicts the disposition of the annual rings, shown here oversized for ease of understanding. These could be construed as the dielectric layers separating the positively charged xylem, (the ascending, nutrient-rich fluid) and the negatively charged phloem (the descending, waste-rich fluid).

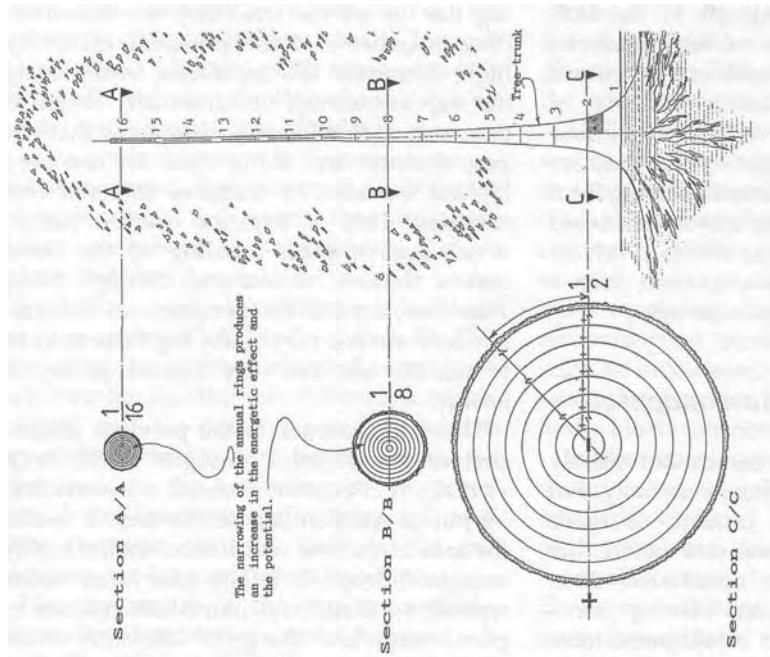
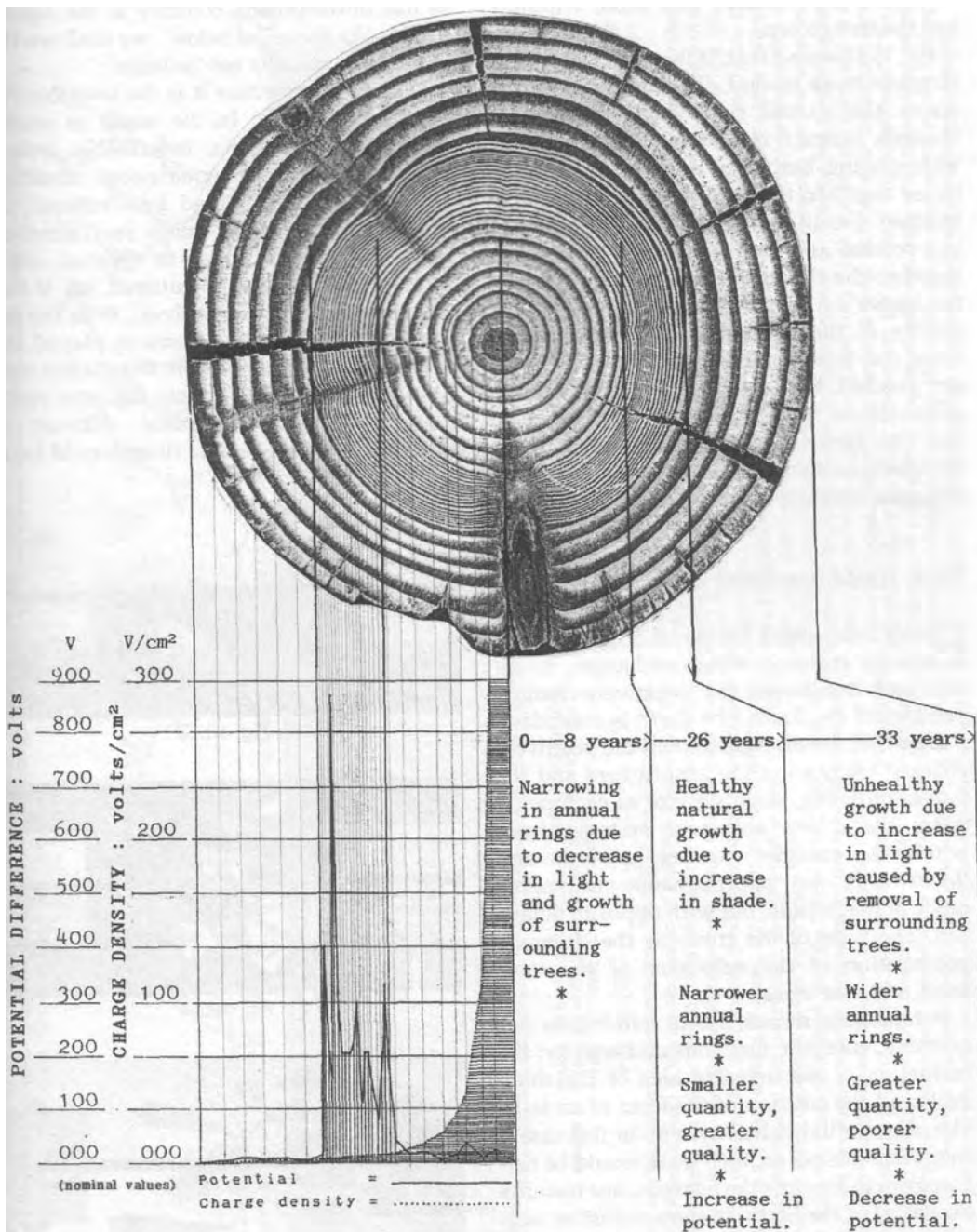


Fig. 18.10 Bio-condenser principle in relation to the tree

layers of fatty material, which separate positive and negative bioelectric charges. In section C/C at the bottom of the trunk, the annual rings are spaced relatively widely apart and relative to its radius at ground level the trunk radius at this point =  $\frac{1}{2}$ . In section B/B, however, the radius has been reduced to  $\frac{1}{8}$ th, the annual rings commensurately closer together and both potential and charge-density correspondingly increased. At section A/A, the radius is now only  $\frac{1}{16}$ th and the magnitude of the potential and charge-density begins to reach enormous proportions, for the narrower the ring spacing, the greater the potential and the greater the amount of available energy waiting to be unleashed.



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Fig. 18.11 Bio-condenser effect in relation to a 33 year old tree under various conditions of growth



a small torch or flashlight bulb. The brighter the light, the healthier and more naturally had the tree grown.

Fig. 18.11 shows that, if the potential (which increases in an inward direction) is measured across the annual rings from the outside inwards, at first it is relatively low, due to the wide spacing. But, as the rings gradually draw closer together, the potential and the energy increase. Creative energy is always a structuring process and the narrower the rings are together, the more resonant they become; the higher the quality of the structure and the quality of the characteristics of the timber. Once the more widely spaced, central rings are reached, the potential suddenly drops away almost to zero. The charge-density, on the other hand, continually increases towards the interior, although not uniformly, due to the irregular structure of the trunk.

## 18.4 Root Systems

Every tree, plant or blade of grass is an Energy pathway which exchanges, mediates and transforms the negatively-charged energies of the Earth (the Earth is essentially a receptive, female system) and the positively charged energies of the atmosphere and the Sun (a radiating, male system) as each penetrates the crown and root systems, from which the energies flowing upwards and downwards are approximately the same order of magnitude, but with opposite polarities. The zone of the crown is the energetic potentiation of the substance of the root-zone, and vice versa.

Potentiation means; ascent into higher frequencies, energetic functions and activity; the realisation of the invisible idea of the thing itself and the creation of the form of an individuality, an individual system, in this case a tree. Were this not so, then there would be neither growth towards the heavens, nor towards the centre of the Earth. In trees and other vegetation this growth first takes place downwards towards the roots and corresponds to the first independent action, the first inhaled breath as it were which, after the birth of a human being is also the first vital act, namely

a going within, a movement into the unseen. In this development, contrary to the age-old maxim 'As above, so below', we shall see that 'As above' is actually not 'So below'.

Here as everywhere it is the invisible that carries the visible. In the realm of mathematics, the intangible, indefinable, infinite series of irrational square-root numbers, which cannot be divided into 'rations', are those numbers, the so-called 'real' numbers, that can only be raised to rational whole numbers if they are potentiated, i.e. if they are multiplied by 'themselves'. With the tree the same mathematical game is played (fig. 18.12), because the invisible foundation must first be developed to enable the later visible manifestation to take place. Without the invisible, inner root-zone there would be no

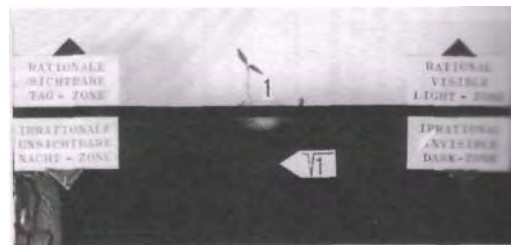


Fig. 18.13

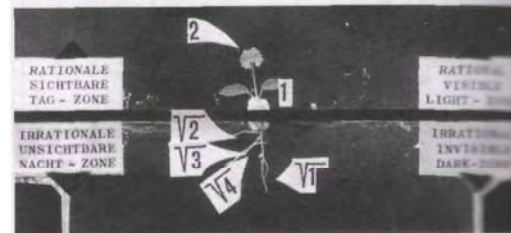


Fig. 18.14

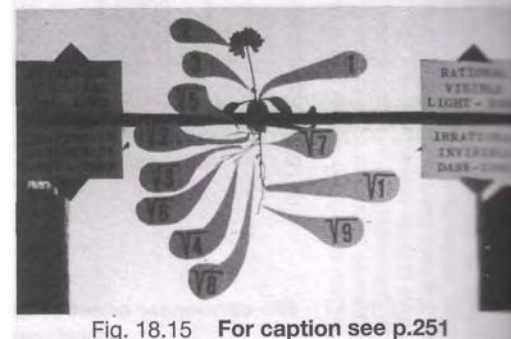


Fig. 18.15 For caption see p.251

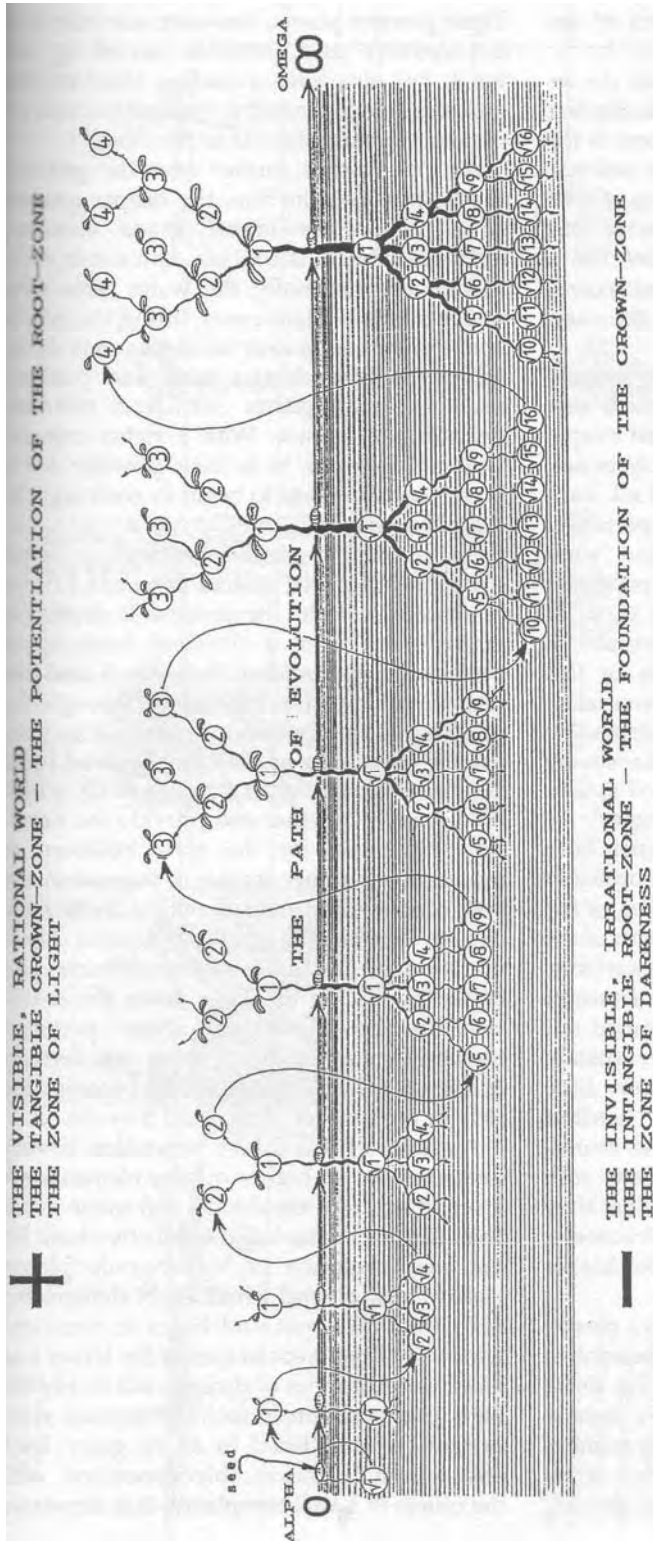


Fig. 18.12

Fig. 18.12 depicts this fluctuating, pulsating action. Starting at the left-hand side, when a seed is fertilised (a seed is the encapsulation of the DNA program for the growth of a future system), its first act of growth is downwards, or more accurately, inwards, as the 1st root  $\sqrt{1}$  — seeks to establish itself. Once this has been done and a solid basis for a movement in the opposite direction has been achieved, only then can the plant, be it a tree, a blade of grass, etc, begin to raise itself into the visible world. The square root of 1 is potentiated, out of which is born the whole number 1 — the stem, the first appearance of an individual system.

Once this first stage has been completed, then the further 3-fold series of roots  $\sqrt{2} \rightarrow \sqrt{3} \rightarrow \sqrt{4}$  — are developed until the foundation for the next visible stage of formation is achieved in the attainment of  $\sqrt{4}$ , which gives rise to the emergence of the whole number 2 (second stage of growth). With the completion of this second stage, then the creative energy moves once more into the unseen realm of the root-zone and proceeds upwards through the 5-fold series of square-roots  $\sqrt{5} \rightarrow \sqrt{6} \rightarrow \sqrt{7} \rightarrow \sqrt{8} \rightarrow \sqrt{9}$ , which culminates in the outward manifestation of  $\sqrt{9}$  in the whole number 3. The result of this latest invisible development is the unfolding of

the magnitude 3 in the real world. From perusal of fig. 18.12 and the later fig. 18.16 it therefore becomes quite evident that the 'above' is not the mirror-image of the 'below'.

The series of images in figs. 18.13, 18.14 and 18.15 also appear to reflect this mathematical progression. In fig. 18.13 a seed was placed on a small piece of cotton wool floating on water enclosed between two sheets of glass at the interface between the light world of the seen and the lower dark world of the unseen. During the period between photographs a black card was placed over the latter zone and no light was able to enter laterally. When removed periodically for inspection, it was observed that the seed's first root  $\sqrt{1}$  — grew downwards into the water, into the unseen, to be followed later by the potentiation of  $\sqrt{1}$  as the first sprouting appearing above it in the zone of light. As shown in fig. 18.14, this process continued to unfold according to the mathematical sequence in fig. 18.12, wherein the second sprouting into the world of the seen, marked with the number 2, only appeared after the lower 4th root  $\sqrt{4}$  — had grown. The experiment was finally abandoned when growth had reached the stage shown in fig. 18.15, after the development of the 9th root segment  $\sqrt{9}$  — and its corresponding third stage of growth marked with the number 3.

basis for the visible external aspect of the tree.

As we hardly ever see them, what do we really know about roots apart from the fact that they hold plants up? In fact there is the widest possible variety of root forms and systems, and their proper distribution is of vital importance to the whole process of tree growth, because each species of tree has a different pattern of root development according to the function it performs and the energies associated with it.

In the case of trees, these can be roughly categorised as flat-rooted, heart-rooted, tap-rooted and deep-rooted trees, the last evaporating more water than heart-rooted trees and flat-rooted trees evaporating least of all. Each plant species, therefore, has its own particular root structure, which penetrates and withdraws the elements it needs from particular horizons in the soil. Although not those of trees, the root systems of various plants shown in figs. 18.16 (a)-(i) give some idea of this enormous complexity. These have been taken from the plethora of diagrams contained in two magnificent root atlases, exhaustively researched and painstakingly prepared in Germany by L. Kutschera and E. Lichtenegger<sup>3</sup>.

When life first began on this planet, both soil and climatic conditions were probably very harsh. No high quality vegetation or life was possible, partly due to the strength of the winds blowing over virtually barren surfaces; and partly because the poor composition of the available soil, drenched and washed out by deluging rains, was unable to sustain them, for without humus there is very little micro-organic activity. Only the hardest plants feeding on the salts and the coarse, unmodified minerals of almost bare rock were able to evolve and, little by little, they began to change the soil environment, thereby creating the preconditions for higher forms of plant to develop.

In this process, the most primitive plants, such as mosses or grasses, first take root at the surface of the ground at (a) in fig. 18.16. They can only extend their roots for a certain, relatively shallow distance below the surface, making use of the low-grade salts and nutrients available at this level for their growth.

These pioneer plants, however, not only trap the nutritive dust particles carried by the wind, but also have a cooling effect on the ground, thereby enabling the first beginnings of useful soil moisture to accumulate.

As they spread further over the ground, shading it from the Sun, the deeper ground strata where the higher grade elements reside, also begin to cool off. As a result, even though infinitesimally, the water table rises under this thin plant cover, lifting the whole body of minerals and trace-elements lying above the ground water table and pushing slightly better quality salts and minerals towards the surface. With a richer mineral base to draw on, it is then possible for a higher form of plant to begin to grow such as that shown at (b).

As this higher plant form requires better sustenance, its root system descends further in search of it. In the process it draws its nourishment from a different horizon, so there is no competition between it and the pioneer plant at (a). Ultimately, through the progressive improvement of the soil and the coming into being of the more evolved plant systems depicted in (c) through to (f), which hold the soil together and provide the necessary protection for the slow build-up of humus, even higher species of vegetation can take root. Now provided with a more even climate within the growing humus layer, micro-organisms gradually proliferate and begin the task of breaking down the coarse minerals into finer and finer particles, thereby increasing the richness and fertility of the soil which, in the process becomes too rich for the pioneer plants, and they die off.

As some of this newer vegetation is very deep-rooted, yet higher quality elements are brought up from the depths and made available, further increasing the nutritive base for the later evolution of higher-grade plants. Hardy bushes and small light-demanding trees then take root and begin to tame the winds, creating areas of shelter for larger and more varied species of timber until finally the high primeval forest with its myriad root-systems is established in all its glory. Each root-system is inextricably connected with the others in a vast complexity that surpasses

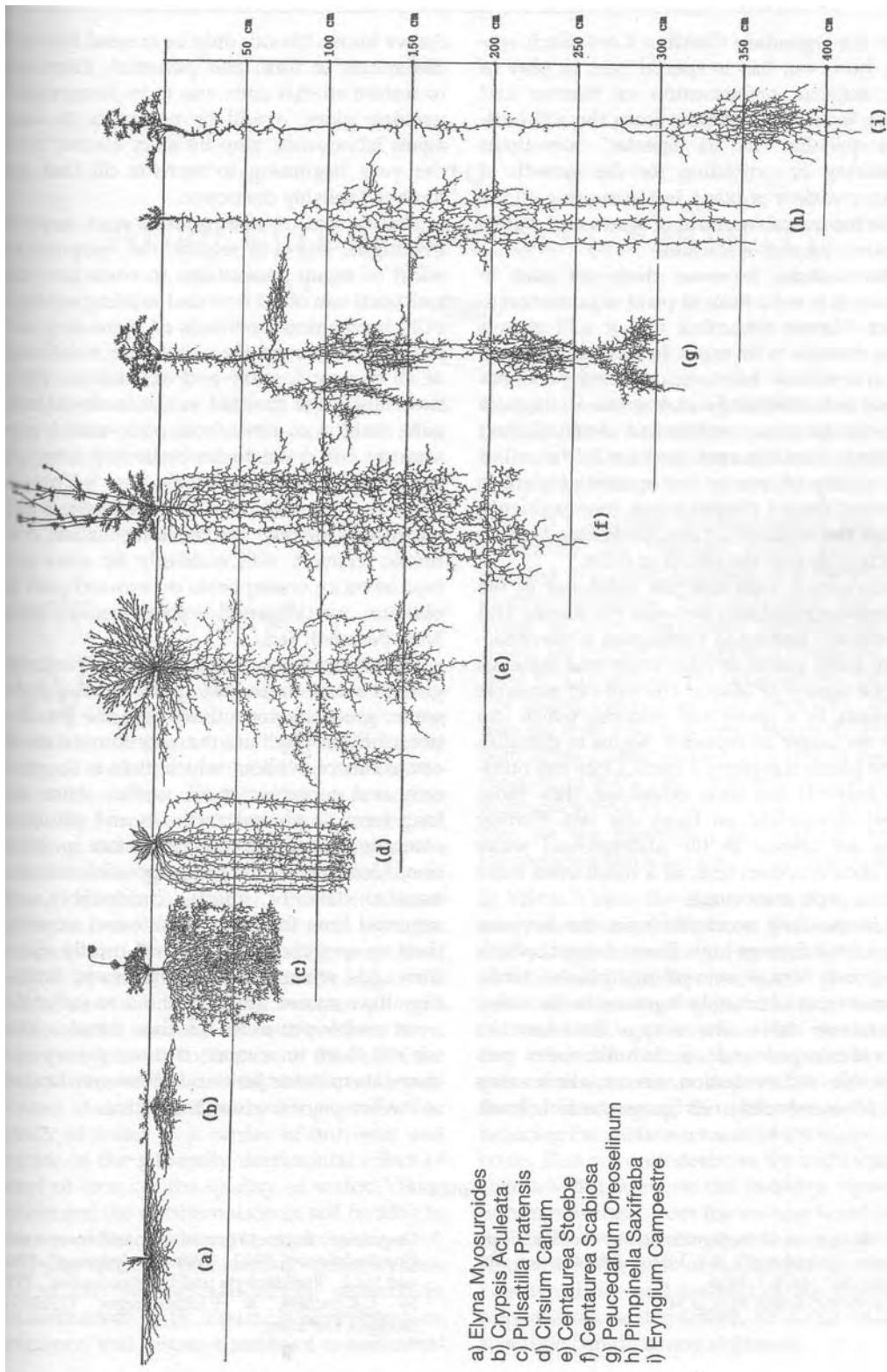


Fig. 18.16 Various root systems

even the legendary Gordian Knot. Each system, however, has its special part to play in this majestic orchestration of Nature and draws its vital substances from the soil horizons peculiar to its species, sometimes enhancing or providing for the growth of another variety of plant, but increasing all the while the overall amount of water and water-retentive humus in the soil.

Monoculture, however, does not exist in Nature. It is not a form of plant organisation to which Nature subscribes and it will always bring disaster in its wake. In monocultures, all this marvellous, harmonious interdependence comes to a screeching halt, because all the trees have the same root system and obtain all their nutrients from the same horizon in the soil. If one variety of tree or one species of plant is removed from a natural forest, then suddenly, within the midst of all this interdependency, a hole is created in the matrix of roots.

Suddenly a vital link has fallen out of the interconnecting chain between the depths and the surface, leading to a reduction in the capacity of some plants to raise water and minerals for the benefit of others. The store of available nutrients in a given soil horizon, which can now no longer be replaced, begins to diminish as the plants compete for them. Once this nutritive material has been exhausted, then those plants dependent on them die out. Further holes are created in the underground water reticulation system and, as a result even more species of plant succumb.

An appalling acceleration in the devastation of the former high forest ensues, which eventually drags everything, plants, birds, animals and ultimately humans in its wake. The former rich biodiversity of the forest has been destroyed and sterile uniformity prevails. No differentiation, no variation exists and life is reduced to its lowest possible level.

As we know, life can only be created through differences in form and potential. Therefore to restore all that once was to its former burgeoning glory, it will be necessary to start again laboriously, step by step, almost from the very beginning to recreate all that we have so foolishly destroyed.

This is not something that can happen overnight, but will require the cooperative effort of many generations to come and the universal use of all new and existing ecologically-harmonious methods of increasing soil fertility. Moreover the wholesale redefining of all current forestry and agricultural practices and laws directed towards short term gain, indeed of the whole of so-called economics, will have to be instituted immediately. There is now very little time left before the seesaw up which we are struggling and which we mistake for the long-awaited economic recovery, will suddenly tip over and hurl us on an unstoppable downward path to oblivion, for the point of no return will then have been reached.

In our arrogance and pursuit of material growth we fail to see that, apart from the gift of water, green photosynthesis and the production of chlorophyll are the very foundation of our existence, without which there is no economy and no future at all, neither short, nor long term. If present methods and priorities continue unabated then what we face is extinction. Unfortunately those responsible for this horrific state of affairs, comfortably off, removed from the rigours of life and secure in their tenures and pensions, will mostly die in their beds, while those whose lives and futures they have ruined are left behind to suffer the most terrible privation. It is time therefore that we call them to account, that we get up and throw them out as Jesus did the money lenders in the Temple, if we wish to survive.

### Notes

1. "The Forest and its Significance" ("Der Wald und seine Bedeutung"), by Viktor Schauberg: *Tau mag*, Vol.146, p.1, 1936.
2. *Our Senseless Toil*, Pt.II, p.34.

3. Diagrams from *Wurzelatlas; mitteleuropäische Grünlandpflanzen*, Vol.1, "Monocotyledoneae" 1982 and Vol.2, "Pteridophyta und Dicotyledoneae", 1992 by L.Kutschera & E.Lichtenegger: G.Fischer, Stuttgart, Germany.

# AGRICULTURE AND SOIL FERTILITY

Our primeval Mother Earth is an organism that no science in the world can rationalise. Everything on her that crawls and flies is dependent upon her and all must hopelessly perish if that Earth dies that feeds us.<sup>1</sup>

Viktor Schauberger

## 19.1 The Golden Plough

While in Bulgaria to construct a log-flume in the 1930s, Viktor Schauberger was also asked by King Boris to investigate why soil productivity and soil moisture, particularly in the northern parts of the country, had begun to decline since the introduction of modern mechanised farming methods. Touring the country to examine the problem in more detail, he found that in the north the fields were ploughed with tractor-drawn steel ploughs, whereas in the poorer south, populated largely by communities of Turkish origin, the fields were still tilled with wooden ploughs pulled in the main by teams of women. Here, however, in stark contrast with the north, the fields were still extremely fertile and produced abundantly healthy crops. From his study of water as a carrier of nutrients and aware of the generally detrimental effect of steel or iron on the quality of water, Viktor attributed the northern drop in soil fertility to the use of faster moving steel ploughs.

Using this as the starting point, Viktor began his postwar agricultural research in collaboration with Franz Rosenberger, an engineer, and began a series of experiments

designed to increase soil fertility. But before going further, as with temperature, here we have to differentiate between two types of electromagnetism.

Type A: Comprises bio-magnetism and bio-electricity, the former more commonly referred to as diamagnetism. It is the form of electro-magnetism that energises and animates all living organisms. Diamagnetic elements are copper, bismuth and hydrogen. Type B: Comprises ferro-magnetism, usually just called magnetism, and electricity, which here we shall refer to as ferro-electricity to give both terms a common root. This type of electro-magnetism is the one commonly in use in our technical world in electric motors and dynamos for the generation of electricity. Ferro-magnetic elements are iron, cobalt and nickel.

In Viktor's view the use of steel ploughs had many detrimental effects on the soil. As the steel ploughshares are drawn rapidly through the soil, minute ferro-electric and ferro-magnetic currents are generated in the interaction of hard steel against soil which decompose the nutrient-laden water molecules in the ground in a manner analogous to electrolysis, thereby discharging the soil's potential and reducing the surface-tension of the water molecule. This not only destroys the soil's subtler energies, but converts the nutritive elements or removes them from the mature water molecule. This was demonstrated in the discussion of the true facts of electrolysis in chapter 8, in which the end product of the process is pure juvenile water, which, as we have seen, is of little benefit to any organism.

In addition, small particles of steel are abraded from the shear-surfaces of the ploughshare, covering the ground with a thin film of rust. As we saw mentioned in the chapter on water supply with steel pipes, this provides an ideal breeding ground for the propagation of pathogenic bacteria, harmful to both soil and crops. This extra deposition of iron also increases the overall iron content of the ground and it is a known fact that soils high in iron are less water-retentive than soils where iron is not present, whereas soils high in copper have the capacity to retain greater quantities of water.

Furthermore, as they move, the ploughshares produce considerable warming friction and soil-crushing pressure-waves in the ground, due to the relatively steep angle of the share. This destroys the delicate soil capillaries responsible for the delivery of nutrients and water to the surface as well as some of the micro-organisms that process them, thereby cutting off the normal supply from below and, in consequence, soil fertility drops markedly. The application of fertiliser, natural and artificial, and other factors for the moment apart, the overall action of iron or steel ploughs is therefore extremely destructive of the natural balance of energies and potencies, to say nothing of soil moisture, and is yet another serious aberration in humanity's treatment of Nature, for as Viktor laments:

Wherever we look, the dreadful disintegration of the bridges of life, the capillaries and the bodies they have created, is evident, which has been caused by the mechanical and mindless work of Man, who has torn away the soul from the Earth's blood - water.<sup>2</sup>

To counter this insidious effect, which was having disastrous consequences for production of high quality food as well as productivity in general, Viktor started to experiment with copper, initially making use of a standard steel ploughshare overlaid with a sheet of thick copper as shown in figs.19.1 & 19.2 for which patents were later applied and which came to be known as the 'Golden Plough' because of the remarkable results it achieved. The use of copper replaced the destructive ferro-electromagnetic effects with

beneficial bio-electromagnetic ones which through processes of bio-electromagnetic ionisation enhanced growth and soil fertility.

This boost to soil fertility was decisively confirmed in field trials carried out in the vicinity of Salzburg in 1948 and 1949. Here fields were ploughed in strips, using steel and copper-plated ploughs alternately. The difference between the two types of plough and their effect became quite apparent. Where the copper-plated plough had been used, i.e. where there were no rust residues and where the water content and other energies of the soil had been increased, the corn stood about 6-8 inches higher with a much fuller head. Some yields in the strips ploughed with copper-plated implements increased by up to 40% in comparison with the control strips where conventional steel ploughs were used. This remarkable increase could only be attributed to the use of copper in lieu of steel, because all other factors of soil chemistry, orientation, furrow width, etc., were identical.

In one experiment, extraordinarily large ears of rye were grown carrying up to 104 grains each; a truly stupendous production, as is shown in fig. 19.3. In another parallel experiment at Kitzbuhel in the Tyrol high quality, well-formed potatoes were produced weighing up to 430 grams, nearly half a kilo, containing as many as 20 'eyes', those portions of the potato that can be cut off and planted separately from which to grow the next crop (fig. 19.4). With such potatoes more food would be made available, not only on account of their larger size, but also because of the greater number of 'eyes', and fewer potatoes would be required for replanting.

Further research work was carried out which, in 1948, resulted in the development of the 'Bio-Plough' shown in figs.19.5 & 19.6; the model in fig. 19.5 was produced by a Hamburg engineer, Jurgen Sauck. The form and function of this plough is completely different to that in fig. 19.1. To reduce the damage to the soil capillaries to a minimum, instead of the pressure-wave forming and shearing crush-cut of the conventional ploughshare, here the blade is designed so as to create a long slicing cut before the soil is involuted through the centripetal action of the curving swan-like



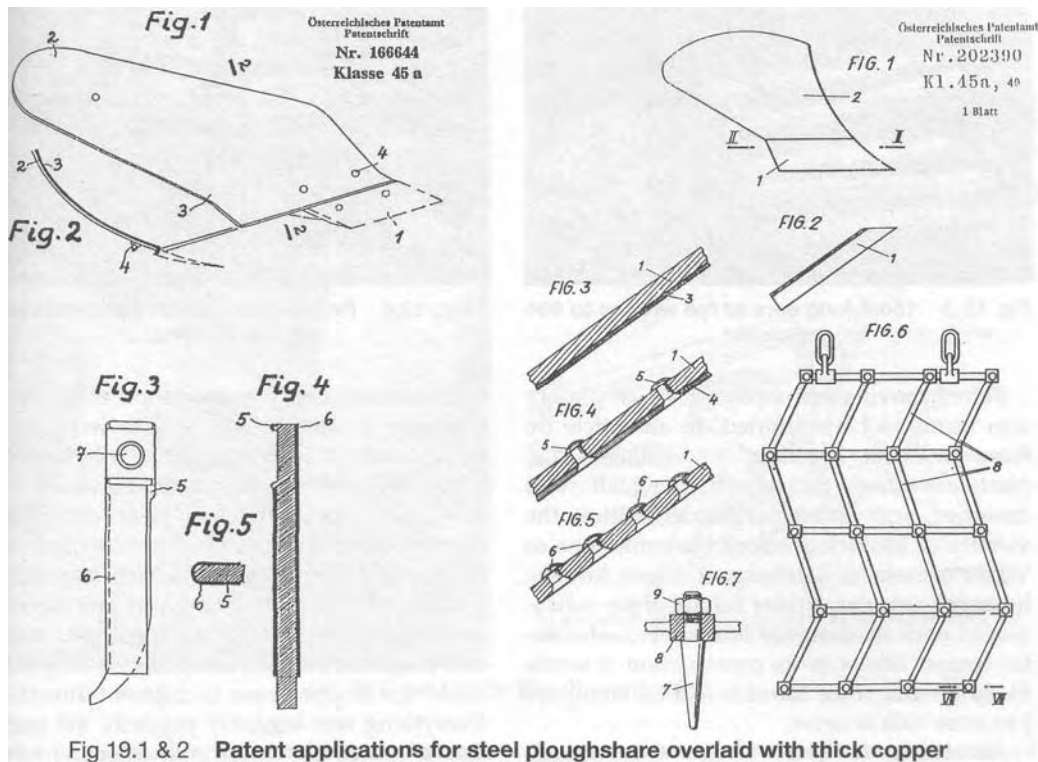


Fig 19.1 & 2 Patent applications for steel ploughshare overlaid with thick copper

wings of the ploughshare itself, emulating the burrowing action of the mole.

Furthermore, instead of presenting a steeply inclined barrier to the soil, this plough presented sharp cutting edges only, the soil gliding through between the curved foils and gently rotated left and right, or right and left as the case may be, in the figure-of-eight movement indicated by the arrowed, broken lines in fig. 19.6. The ploughshare itself is made of phosphor-bronze which is nearly as hard as steel and therefore almost as durable. In any event, the vastly increasing productivity arising from its use would well outweigh the costs of its eventual replacement. As a result of these experiments it was clearly established that the soil should never under any circumstances, be worked with naked iron or steel, but only with implements made of wood, copper or copper alloys.

Despite the obvious and proven benefits to the nation that would accrue from the use of this plough, it never went into production for, owing to the success of his Salzburg

field trials, Viktor Schaubergner once again came up against the corruption of politicians and the concerted opposition of entrenched interests. During the period immediately after the war copper was a scarce commodity in Austria and, having been unsuccessful in obtaining further supplies through normal channels, Viktor approached the Ministry of Agriculture. There he was told by the Minister that more copper sheet would only be made available to him if he compensated the Minister financially for the losses he would suffer if he supported Viktor, because at that time the Minister was receiving large bribes from various manufacturers of artificial fertiliser to promote the use of their products. True to his upright nature, Viktor categorically refused, saying that he did not traffic with criminals. As a result all copper, particularly in sheet form, was denied to him and this whole area of research and development, potentially so beneficial to agriculture everywhere, came to an abrupt end.



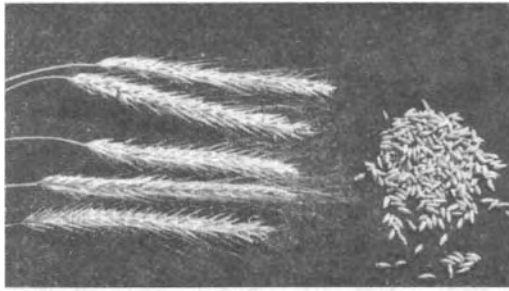


Fig. 19.3 15cm long ears of rye with up to 104 grains/ear



Fig. 19.4 Potatoes grown on alpine farm at Kitzbuhel, Tyrol.

Before moving on, another form of plough also needs to be examined. In an article by Kurt Lorek in *Implosion*<sup>3</sup> he discusses the plough shown in fig. 19.7, which was designed, built and experimented with in the vicinity of Munich at about the same time as Viktor's trials in Salzburg. It is not known, however, whether Viktor Schaubberger collaborated with its designer but, as it used similar copper alloys in its construction it seems likely he did, since Munich and Salzburg are just over 100km apart.

According to Kurt Lorek, this plough produced equally astounding increases in productivity. The rotation of its 4 or 5 copper or copper-alloyed spiral blades was directly geared to the forward movement of the tractor, thereby slicing rather than ripping the sod as well as giving a slight impetus to forward motion. As can be seen from the diagram, the ground was also sprayed with water or liquid manure. This was to moisten the soil during ploughing operations in order to offset the additional evaporative losses caused by conventional ploughing, as well as providing for simultaneous fertilisation. All trace of this plough has since been lost but, in view of its apparent efficacy, its design is certainly worthy of resurrection.

## 19.2 Sun Ploughing

Always paying attention to the apparently insignificant, in his investigation of the drop in soil fertility in Bulgaria, Viktor Schaubberger also noticed that, whereas the fields in the north were harrowed, those of the Turkish

communities were not, the people either being too poor to afford them or the women too weak to drag a harrow over the rough tillage. What he noted in particular, however, was that after ploughing had been completed, there were no straight, even furrows but, due to the single wooden tine, which was all the women had strength enough to pull through the ground, the furrows were not only rough and irregular, but also composed of very large clods that flopped over in different directions. Everything was higgledy-piggledy, yet out of this disorder the most marvellous, healthy crops were produced. Apart from the use of wood instead of steel, here was another factor that contributed to the evident fertility.

The irregularity of the furrows and the over-size clods gave rise to an even distribution of sunlight as the sun passed across the heavens. Very little of the soil, therefore, was constantly exposed to the drying and heating effect of

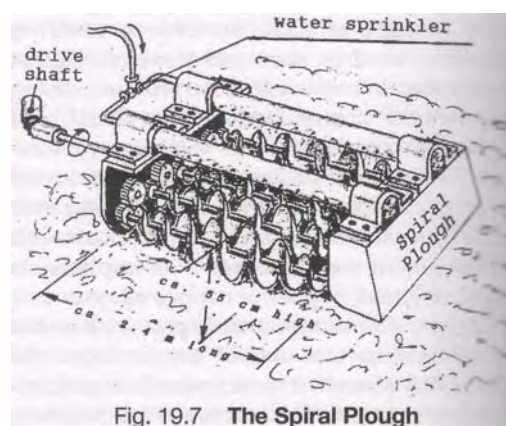


Fig. 19.7 The Spiral Plough

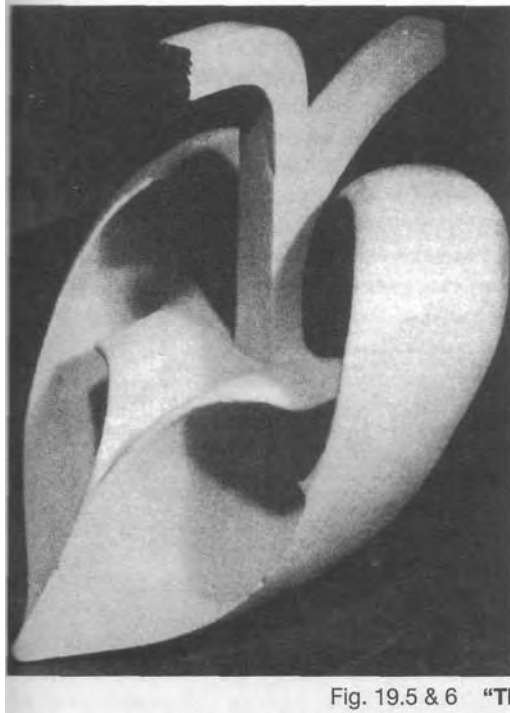
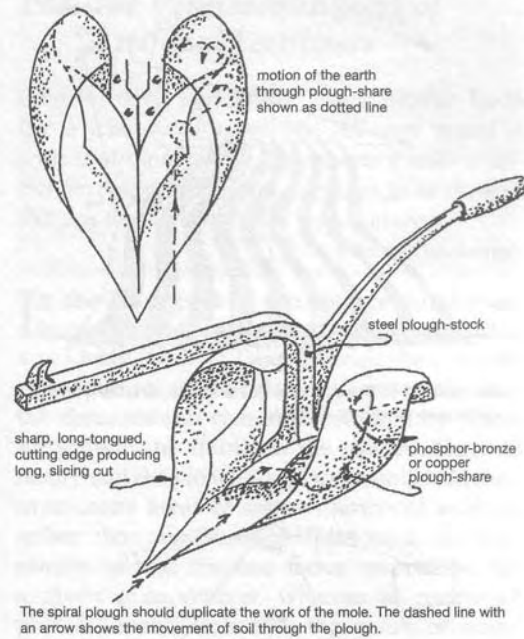


Fig. 19.5 &amp; 6 "The Bio-Plough", 1948



direct sunlight, the clods and the convoluted furrows providing changing patterns of shade. In consequence far less soil became desiccated and the young sprouts thrived in the additional soil moisture and were protected for a great part of the day from overheating.

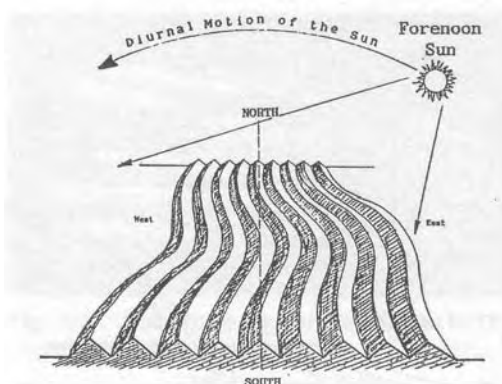
With harrowing, however, the clods are reduced to relatively small particles, which understandably not only dry out much more quickly, but the depth to which soil moisture is reduced is much greater. All this makes the germination of seed far more difficult as well as facilitating erosion, because the smaller particles can be washed away more easily. The solution to this problem lies not only in the method of ploughing, but in the overall orientation of the furrows.

Instead of ploughing in straight lines in any direction, the furrows should be sinuous, curving first one way and then the other, and oriented as far as possible in a north-south direction. Fig. 19.8 shows that no surface is thus exposed to uninterrupted solar radiation because of the ridging of the furrows and their curvilinear configuration. Similarly, the young shoots of the new crop receive a more

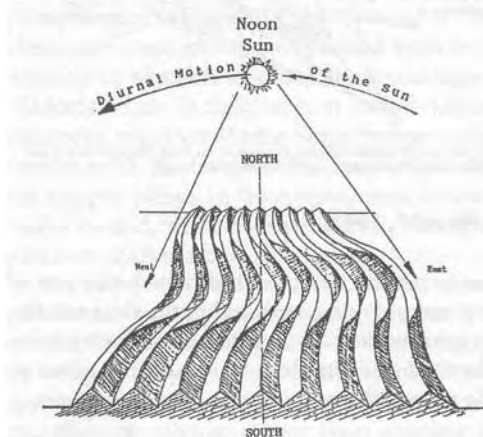
even exposure to direct light, each portion of the plant enjoying both light and shade as the day progresses. As a result, soil moisture is enhanced and the flow of sap is disturbed as little as possible.

### 29.3 Of Cows and Scythes

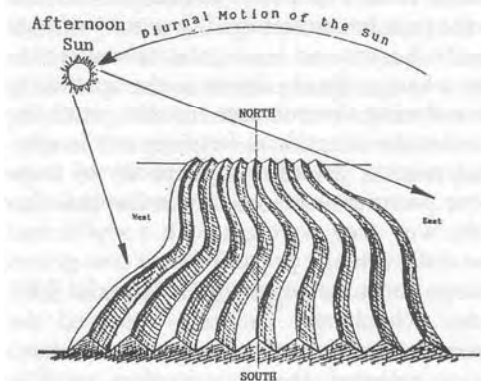
There is another aspect related to cows and the maintenance of fertility worthy of note here. In Austria and other mountainous countries, where cattle are driven to the uplands to graze during the summer months, until the introduction of artificial fertiliser and mechanised reaping the carrying capacity of these alpine pastures was virtually unlimited, due to the way they were cut with a scythe and how cattle actually graze. When a cow grazes it crops the tufts of grass in a special way. Viktor Schaubерger carefully observed the movements of the cow's tongue and noticed that it gathered the grass-haulms together with a spiral enclosing sweep, finally separating them from the tuft in a clean break with a jerk of its head precisely at the point where



1. No portion of the soil has continuous, uninterrupted exposure of direct sunlight.



2. Shadow areas vary with the time of day and the seasonal height of the sun.



3. Plants and crops have even distribution of solar radiation.

Fig. 19.8 Advantages of Sun Ploughing

the haulm suffered the least damage. Having done so, with its soft muzzle and saliva, the cow then nuzzled the open wounds on the haulm, thereby sealing them and preventing any loss of moisture and energy.

With adequate winter fodder always a concern for these peasant farmers, while the cattle grazed they also harvested as much grass as the season permitted, sometimes cutting the grass three times before winter fell. Because of the steepness of the alpine slopes, the implement they used for this was the scythe which, for them, was a highly prized and very personal instrument, entrusting its use only to those they knew would look after it properly.

Looking after a scythe properly entails sharpening it not with a sharpening stone but by hammering the blade on a block of hardwood (fig. 19.9) which, as a non-conducting material, safeguards the accumulation and storage of the resultant energetic charge. To ensure that it does not leak subsequently the scythe-blade, which is mounted on an equally non-conducting wooden handle, is then wrapped in cloth and stored in the dark away from the heating effect of the Sun which would otherwise discharge it. This sharpening process, however, was always undertaken towards late afternoon or in the early morning immediately prior to harvesting, which was also done at these times to prevent the de-energising light of the Sun from striking the scythe blade. When the pastures were scythed in the growing darkness of the long summer evenings, it was possible to observe these accumulated energies in the form of minute glowing sparks, which leapt from one serration on the blade to another.

Most conventional mowers cut with an inclined blade against a sharp edge and, while this does cut the grass, it is a process akin to the action of the standard ploughshare mentioned earlier. In other words, it is a crushing ripping cut which damages the capillaries in the grass-haulm and shreds the top of the haulm for several millimetres. This exposes a large surface area to unwelcome bacterial activity and germs, as well as allowing the grass to bleed. As a result, instead of applying its energies immediately to new

growth, the grass-haulm first has to heal the wound which in this case may take several days. The scythe, on the other hand, delivers a long, slicing cut, thereby keeping the wound-area to a minimum. Due to the energies inhering in the blade and implanted there by hammer-sharpening, the imparted ionisation quickly draws the elements in the material surrounding the wound together and rapidly seals it.



Fig 19.9 Scythe-hammering

It is clear that the centuries-long maintenance of fertility and productivity on these high alpine pastures was due to the combined effects of the correct use of the proper implement at the right time of day and the natural cropping of the grass by the cattle. This alone should give us cause to reassess presents methods of harvesting green fodder and the times of day when it should be cut. It may well be that a suitable mechanical reaper blade should take the form of the spiral blades of the plough shown in fig. 19.7, but the cutting spiral edges should be more closely spaced and mounted at right-angles to the direction of movement. The spiral blades themselves could likewise be made of phosphor-bronze, rotating forwards from the ground upwards so as to slice the grass as cleanly as possible.

Today, however, no account is taken of all these subtle effects and, despite massive artificial-fertiliser-induced overproduction in some countries, soil fertility and productivity are actually on a steep downward path, although at the moment we are not aware just how steep it is.

## 19.4 The Pernicious Effects of Artificial Fertilisers

Contemporary agriculture treats Mother-Earth like a whore and rapes her. All year round it scrapes away her skin and poisons it with artificial fertiliser, for which a science is to be thanked that has lost all connection with Nature.<sup>4</sup>  
Viktor Schaubberger

In the latter part of the 19th century, apart from his other achievements, Baron Justus von Liebig (1803-1873), a German chemist, carried out a great deal of research into the elements and chemicals required by plants for growth, no doubt in the sincere desire to rectify soil deficiencies and increase fertility. As in so many areas of science, however, analysis rather than synthesis is uppermost, the aim always to find the one factor responsible for a given phenomenon, whereas in reality all physical manifestation is the result of many synergetic influences. In the event, Liebig determined that the principal ingredients for soil fertility besides calcium (Ca) in the form of lime, were nitrogen (N), phosphorus (P) and potassium (K), frequently referred to today as NPK.

Nitrogen is supplied in the form of urea ( $\text{CO}[\text{NH}_2]_2$ ); ammonium sulphate ( $[\text{NH}_4]_2\text{SO}_4$ ) - a by-product of coal-gas production; nitrates, which are salts or esters of nitric acid ( $\text{HNO}_3$ ); calcium cyanamide ( $\text{CaCN}_2$ ), which is converted into ammonia by water and produced by heating calcium carbide ( $\text{CaC}_2$ ) at a temperature of  $1,000^\circ\text{C}$  in nitrogen gas.  $\text{CaC}_2$  on the other hand is produced by heating calcium oxide ( $\text{CaO}$  - quicklime) which in turn is made by heating calcium carbonate ( $\text{CaCO}_3$ ), a substance occurring naturally in the form of limestone, chalk, calcite and marble.

Potassium (K) comes inter alia in the form of potassium chloride (KCl), potassium sulphate ( $\text{K}_2\text{SO}_4$ ) and disodium hydrogen orthophosphate ( $\text{Na}_2\text{HPO}_4$ ).

Phosphorus is obtained by heating calcium phosphate with coke and silica in an electric furnace and is introduced into the soil in other compounds such as phosphate ( $\text{H}_3\text{PO}_4$ ), calcium phosphate as calcium hydrogen orthophosphate, better known as superphosphate ( $\text{Ca}[\text{H}_2\text{PO}_4]_2\text{H}_2\text{O}$ ).

All of these products are soluble and the majority of them, sometimes in the form of slag, are manufactured from and as by-products of what Viktor Schauberger called 'fire-spitting technology'. In other words, they are produced with structure-disintegrating and energy-depleting heat. In their final preparation they are either made into solutions for sprayed application to the soil or thoroughly ground into fine deliquescent powders, their deliquescent properties enabling them to attract moisture from the air or the soil in order to liquify.

As another means of turning waste material to profit, these compounds were quickly seized upon by various chemical and other manufacturers. Despite Liebig's later recognition and admission that the elements required for healthy growth were far more complex than simple NPK and that further detailed analysis was vital lest irredeemable damage be done to the soil, his words went unheeded and the production of artificial fertilisers proceeded apace. With their use, the height of cereals and health of crops generally quickly diminished, each succeeding application further depleting the fundamental fertility of the soil as its organic base was gradually eroded. Applied as part of a highly mechanised farming system using steel implements, large tracts of mid-western America were reduced to dustbowls as a result, forcing the impoverished farmers to leave their land.

Today the use of artificial fertilisers continues unabated, but slowly and surely and just as inevitably they will finally reduce the soil to a lifeless mass. Naturally, the manufacturers of artificial fertiliser will point to the enormous production that has been achieved with its use, but this has been a production of quantity at the expense of continually decreasing quality, of profit at the expense of life. Artificial fertilisers act like stimulants and prop up production like narcotics to which the soil has unwillingly become addicted. Like drug addicts, who can neither function nor survive without frequent injections and who, as their physical condition worsens, require more and more shots to extend their lives a little further, the soil too is dying.

All the vital capillaries, which supply naturally derived nutrients, mature water and conduct rising immaterial energies, are being blocked up by these fine powders. The stultifying effects of the latter substances de-energise the soil and, at the same time, rob both the lower ground-strata and the young plants of moisture, for in their deliquescent state these chemicals use this moisture to become liquid. With insufficient moisture, transpiration is reduced and the plants' internal temperatures rise with the same unwelcome results as we saw in shade-demanding timbers exposed to sunlight.

The capillaries now choked, it becomes more difficult for rain to infiltrate. This in turn gives rise to more rapid runoff, quickly followed by faster re-evaporation, both of which make irrigation a necessity. Such irrigation, however, is carried out with virtually worthless water as mentioned in earlier chapters, and the produce grown under such conditions, while large and apparently healthy, is almost tasteless, their colour often as artificial as rouge.

Moreover, if excess nitrogen is introduced in any of the above compounds, it makes less ionised material available for root development, leading to further water starvation of the affected plant, because the negatively charged ions, the anions-, in the nitrates in artificial fertilisers take cations+, the positively charged ions of other elements, downwards away from the root zone, thereby robbing the trees and plants of positive cations+ such as magnesium and calcium ions. It is important to remember that the magnesium atom is the core atom in the chlorophyll molecule.

Nature quickly despatches the 'Health Police' in the form of parasites and other blights to remove the organisms which have now become diseased, necessitating the use and overuse of pesticides and fungicides. Once the crop thus treated has been harvested, apart from passing on the pesticides to the consumer, it then becomes necessary to fumigate the ground in order to eradicate these supposedly pernicious pests, which are none other than sure indicators of the ill health of both plants and soil. Areas of ground are sheeted with plastic and probes inserted into the ground to infuse it with poisonous gases.

Everything dies - earthworms, micro-organisms and beneficial bacteria alike. Life with all its differences is completely eliminated as total uniformity supervenes.

While it is often stated in defence of artificial fertilisers that the world population could not be fed if their use was discontinued, this is yet another smokescreen to ensure large profits, for there are other ways far more effective, far cheaper as well as environmentally sustainable, which not only increase quantity, but quality too, and to which we shall now turn.

## 19.5 Biological Agriculture

In sustainable agriculture the key factor is not so much the make-up of the underlying ground-strata, but rather the composition of the uppermost stratum referred to as the top-soil, which can vary in depth from a few centimetres to several metres. The long term fertility of the soil is wholly dependent, firstly on the depth of this stratum, and secondly on its content of organically processed material. Under natural conditions this friable zone is populated with an abundance of earthworms and other creatures, and culminates in a profusion of microbial activity in the surface layer of humus, which generally consists of decomposing leaves and other organic matter. Without all this mineral and chemical processing, fertility decreases rapidly and it is therefore in our vital interest to ensure that a suitable soil environment is not only maintained, but also increased wherever possible.

This can be done in several ways which will only be elaborated briefly here, since there is ample information readily available in most bookstores. Viktor Schauberger's contributions, however, will be addressed in more detail and while we are here concerned more specifically with food production and soil fertility, all the others factors and influences discussed in previous chapters should still be taken into account.

### SOIL REMINERALISATION:

In 1894 Julius Hensel, an agricultural chemist and contemporary of Justus von Liebig, pub-

lished an important book, *Bread from Stone*, elaborating the beneficial effects of fertilising with stone-meal, better known as 'crusher dust' or 'rockdust'. However, by this time the production of artificial fertiliser was well under way and as his book posed a significant threat to this new industry, just about every copy was sought out, bought up and destroyed, to the great detriment of both life and soil.

In essence, soil remineralisation is an inorganic approach to increasing soil fertility. While it may sound very much like artificial fertilising, it is, however, a fundamentally different process and involves the use of very finely ground, but otherwise untreated, mainly igneous rocks with a broad mineral spectrum, such as diabase, basalt, etc. Once ground in a cold process which retains its inherent energies, it is then spread over the cultivated land and, because of its wide variety of salts, minerals and trace-elements, it gives rise to the emergence of an equally large variety of different micro-organisms.

Although this system of fertilisation has been in use in Switzerland for nearly 150 years on a limited scale and, no doubt, contributed to the compiling of Julius Hensel's book, its more recent use has been pioneered with amazing effect by the American engineer, John Hamaker. In his book *The Survival of Civilisation*<sup>5</sup> written in collaboration with Don Weaver, he explains in detail the climatic importance of remineralisation, as it is the magnitude and mixture of the available mineral and trace-element base that is the determining factor in the growth and quality of vegetation, the latter being the vital moderator of climatic extremes. The book also describes the marked increase in fertility and depth of top soil that John Hamaker achieved on his Michigan property, which increased from about 10cm (4in) to about 1.2m (4ft) over a period of 10 years.

More recent experiments with this material by the 'Men of the Trees' under the direction of Barry Oldfield in Western Australia showed a remarkable increase in the growth and health of seedlings planted with it as against those without. Rockdust has already been produced inadvertently for most of this century in all quarries where gravel or blue



road-metal is crushed for road making or aggregate produced for building. The plant and machinery for its larger scale production is, therefore, already at hand and, with a little extra investment in fine crushing mills where necessary, almost unlimited quantities can rapidly be made available relatively cheaply. Indeed, at the 1993 annual convention of the National Aggregate Association and the National Ready-mix Concrete Association in San Antonio, Texas, where Don Weaver gave an address, he was informed that the combined production of both organisations amounted to 2 billion tons of aggregate of which 200 million tons were rockdust 'fines', whose disposal was a recurring headache.

Though an initial application is preferable in extreme fineness, because it makes the greatest surface area immediately available to micro-organisms, a mixture of large and small particles also ensures a slow release of minerals over a long period. Another beneficial effect of rockdust is that it has been shown to be a buffer against nitrate, sulphur dioxide and nitroxide, and it absorbs and fixes anions-while leaving cations+ free for the use of the plants. Under normal conditions rockdust need only be applied every five years or so, the quantity being determined through careful analysis of soil deficiencies, although whatever the soil condition, the effect has been shown to be beneficial<sup>6</sup>.

That people and not only plants can benefit from rockdust is amply demonstrated by the state of health and well-being of the Hunzas of Northern Pakistan. Living in the high, clean air of the Himalayas, their fields are watered by cold glacier melt-water, rich in trace-elements ground from the rocks over which the glacier passes. Their fields were therefore constantly fertilised with a broad spectrum of minerals, which not only maintained a high level of productivity, but ensured that the produce itself was vibrantly healthy and disease-free. At the time of the British Raj, an army doctor was once stationed in Hunzicut for a period of ten years as resident medical officer. During his sojourn, apart from treating the occasional wound and fracture, he had nothing to do, such was the high state of health of these mountain people, whose average life-

expectancy of between 130 and 140 years can only properly be attributed to the supreme quality of the food and water available to them. A further pointer to the wholesome influence of rockdust, which has very interesting and positive ramifications for the improvement of drinking water, was demonstrated by the behaviour of the pet dogs of some friends of mine in Queensland. As rockdust enthusiasts they had been fertilising their fruit trees with it, using a bucket for transportation. While the dogs normally drank copiously from bowls on the veranda filled with rainwater from the tank, over a period of days it was noticed that the bowls were always full. Wondering where the dogs were getting water, they were followed and seen to drink out of the bucket used for carrying the rockdust. Left beside the heap, this still contained a small amount of rockdust and had filled with rainwater in the interim. As animals are far closer to Nature than most human beings and because they act on instinct, there can be little doubt that these dogs knew what was best for them, as was also the case of the cows whose behaviour is described below in the section on biodynamic farming. We would therefore be well advised to take a leaf from their book of knowledge.

#### ORGANIC FARMING:

Although, prior to the introduction of artificial fertilisers, organic farming, with the use of cow manure, farmyard liquor and composted vegetable matter was the norm, over this century these practices largely lapsed due to the less labour-intensive use of chemicals and the apparent resultant rise in productivity and therefore profitability, with the result that most farmers switched to artificial fertiliser completely. Others, however, steeped in the organic traditions of their forebears, were not swayed by the blandishments of artificial fertiliser manufacturers and held to their well-tried and trusted methods, thereby safeguarding the older knowledge, which, since the end of the Second World War, has experienced a renaissance, organic produce now increasingly being seen to be of far higher nutritive worth.

The underlying philosophy of organic farming is to return to the soil for reprocess-

ing what was previously removed from it and, in this way, the fertility of the soil was successfully sustained for many centuries.

Moreover, as the material is organic rather than so-called inorganic, it requires less of Nature's energy to reconstitute it into a form readily assimilable by plants, as the energies required to convert it from an inorganic to an organic state are spared.

With composting as generally understood today, however, instead of previously dried material, green sap-laden vegetable matter interleaved with layers of earth is used, which generates considerable heat in the compost heap itself. Indeed this warming is generally taken as a sign that the composting process is progressing properly.

While the product of such a heap is eventually broken down and well-fermented at completion and while it does maintain the current level of fertility, according to Viktor Schauberger it does not increase it markedly, except in cases where no compost has been used previously. One of the reasons for this is that the relatively high internal temperatures prevent the entry and activity of the earthworms, always sensitive to heat, until the latter stages, when the heap has cooled sufficiently for them to be attracted into the decomposing material.

Furthermore, there is no consideration given to the effect of rainfall which, as mentioned earlier, is juvenile, element-hungry water and avidly seizes upon whatever material it can find in order to become mature. By constructing a compost heap differently and by protecting it from rain, the end-product will be of far higher quality, not only as a result of cold rather than hot processes of fermentation, but also due to its higher content of protein and other immaterial, fructigenic energies.

Although shown here on a small scale, the same principle can be applied to larger compost heaps. In Viktor Schauberger's view, a compost heap should be egg-shaped, reflecting the life-giving properties of the egg, and should ideally be built up under a large fruit-tree with a broad canopy as shown in fig. 19.10. Protected by the foliage above, a cavity is scooped out of the ground around the base of the tree into which a 20cm thick

layer of sun-dried or otherwise desiccated leaf-matter and vegetable residues are laid. It is important that this material is thoroughly dried before being added to the heap, for excess water will trigger unwanted heat during fermentation. The whole is then covered with an equally thick mixture of earth, fine sand and river gravel. Use of the latter elements not only harks back to the system of remineralisation above, but also to the improved quality of material carried by naturally flowing streams. To this mixture is added a small quantity of copper and zinc filings, whose function will be explained later.

Before this is done, however, the trunk is first wrapped loosely with several layers of newspaper or other suitable decomposable material, which not only protects the tree but, once decomposed, then provides a duct surrounding the trunk for the entry of air. The heap is then temporarily covered with clay or an impermeable material to prevent the entry of rain and its content of raw oxygen. Since this is a cool process, earthworms, insects and other aerobic micro-organisms are at once attracted into the heap and begin their reprocessing activity aided by the diffused oxygen, nitrogen and other trace gases entering through the newspaper or sacking round the trunk and the overlying mixture of earth and sand.

Gradually, as more vegetable refuse becomes available, the heap is built up into the stable form of the egg shown in fig. 19.9. Once finished, and to ensure the wholesome completion of this cold decomposition, the entire heap is then faced and smoothed over with clay to prevent the entry of rain which, due to the near vertical external surfaces, is more inclined to drain down the side than infiltrate through the clay. The final act of maturation then begins.

Having by now infiltrated the whole of the compost heap and thoroughly aerated it, the microbial life and, in particular, the earthworms which by this time have populated the compost heap in their thousands, begin to die off, their decomposing bodies giving an additional nutritive boost to the end-product with the provision of large quantities of animal protein. In late autumn the strength of the Sun's light and heat dimin-



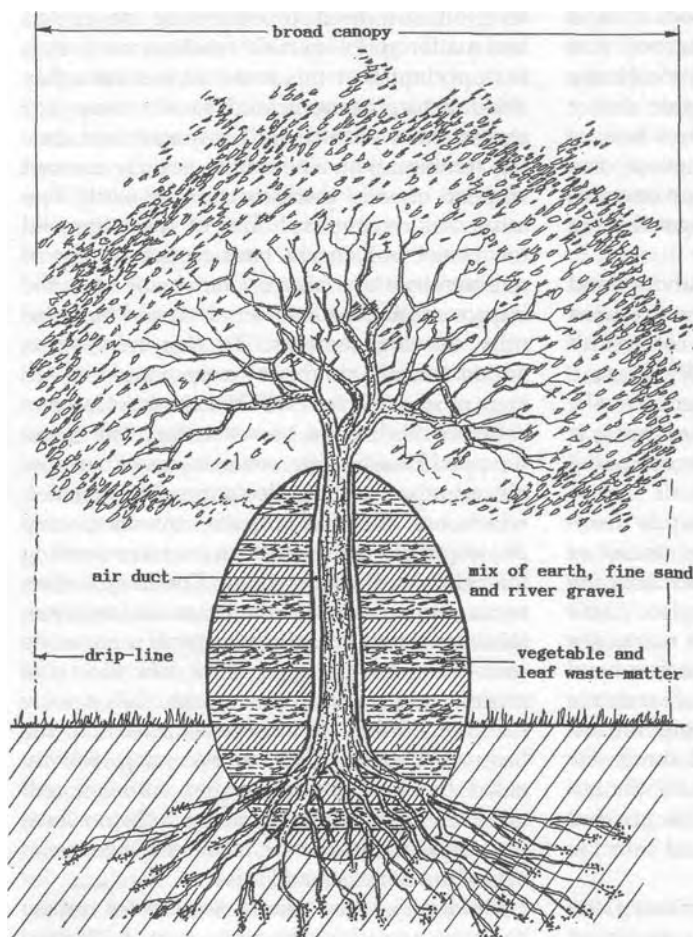


Fig. 19.10 The egg-shaped compost heap

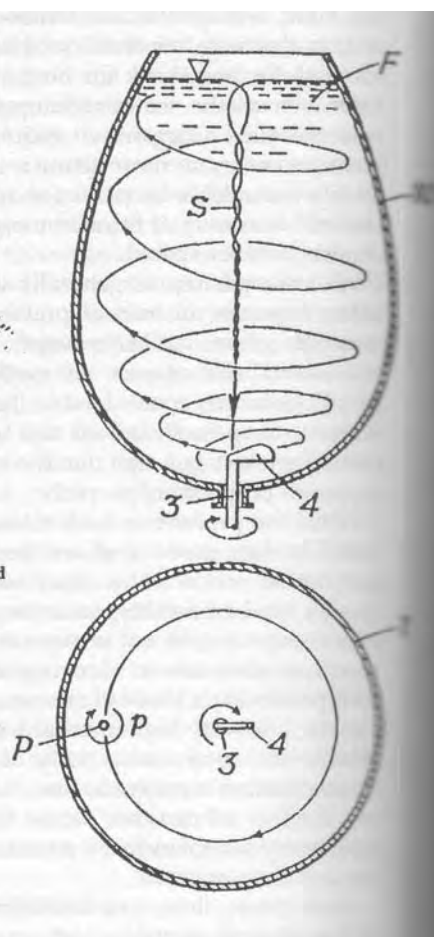


Fig. 19.11

ishes, the ground begins to cool more markedly and a strongly positive temperature-gradient is established between atmosphere and ground. This is when the compost heap is demolished to ground level, the residual matter being left in the cavity around the trunk and roots of the tree. Towards evening, the material is spread evenly over adjacent fields, for under the positive temperature-gradient - most powerful at this time - the nutrients are carried below with the infiltrating rain or dew.

In this way the land is provided with far richer and higher-quality, natural fertiliser, which not merely maintains but increases fertility. At the same time, the host tree also benefits enormously and produces

an abundance of healthy, blight-free and tasty fruit. By constructing such compost heaps under different trees each year, eventually all the fruit trees are well fertilised. Where no suitable trees are available, however, compost heaps can be built up in similar fashion, but in the form of dome-like humps or barrel-shaped clamps, which should not only be suitably protected against the entry of rain-water, but insulated from the heating effect of the Sun.

#### BIODYNAMIC

Biodynamic farming is a system of agriculture devised by Dr. Rudolf Steiner (1861-1925), a teacher and philosopher born in Austria, and founder of the Anthro-

#### FARMING:

posophical Movement. Anthroposophy sees the human being as the highest exponent of the Divine on Earth, embodying all the instruments and agencies of creative power and patterns of physical manifestation; it studies the world through the inner and outer nature of humanity. Its approach to farming basically assumes energy to be the primary cause, and growth the secondary effect. To what extent Rudolf Steiner and Viktor Schauberger mutually influenced each other's thinking is not recorded, although it is known that they did have fairly lengthy discussions.

Biodynamic farming's attitude to fertilisation is to exalt the energies in decomposed and organically transformed organic matter by filling empty cow horns with a base material of cow manure. These are then buried en masse about 60cm underground in autumn, when the Earth's geospheric energies sink into the ground as the repose of winter approaches. Due to the vortex-like and vortex-enhancing shape of the cow horns, the transformative, horizontally propagated fructigenic emanations in the ground are focused on the contents of raw dung and, in the coolness of the ground over winter, are transmuted under cold processes of fermentation. In early spring, when the fields require fertilisation, the cow horns are dug up, their contents having been transformed into a sweet-smelling, highly active substance as a result of their sojourn in this zone, permeated by geospheric energies.

This transformed material is then used in the production of the natural fertiliser known as '500 mix'. Due to the sustained efforts of Alex de Podolinsky in Victoria<sup>7</sup> and others such as Terry Forman in New South Wales, it has been increasingly widely used as fertiliser, at least since 1947. To date over a 1 1/4 million acres are fertilised in Australia using this system and, seen from the air, those properties where it has been applied stand out clearly from neighbouring farms, due to the greater abundance of green pasture. Indeed on Alex de Podolinsky's farm the grass was so lush and wholesome that several of his neighbour's cows broke through the fence to eat it. Discovered some four hours or so later, they were rounded up

and returned to their own paddock. It was noticed that they did not eat for two or three days, so high was the quality of the grass they had eaten on the biodynamic farm.

The fertiliser '500' itself is produced with a pulsating movement similar to the homeopathic process of succession, in which the state of energy or order is progressively increased through the successive creation and recreation of order and chaos. A small quantity of the transformed cow dung is added to water and mixed in such a way as to create vortices rotating about the vertical axis of the mixing vessel. Here the liquid is stirred in, in one direction until the vortex has been formed. The direction of mixing then reverses until another vortex is created. This process of repeated reversal of direction not only imbues the liquid with the opposite charges arising from opposite directions of rotation, but also draws in inseminating O<sub>2</sub> while gradually building up and structuring the liquids internal energies in a process best explained by the art of sword making.

Apart from the various alloys used in the Japanese art of swordmaking, the base material is first made red hot and then beaten out or 'structured' with a hammer as it cools. It is then further heated to incandescence, folded over on itself, fused together and beaten out again. Here the reheating represents the chaoticising aspect, whereas the beating is the structuring aspect. Little by little, with continued repetition of the two processes involving order and chaos-creation, the structure of the blade increases and the level of chaos diminishes, ultimately producing a razor-sharp blade whose structure is both laminar and flexible. In similar fashion with the fertiliser, as the vortices are alternately formed and destroyed, the level of energy rises and the degree of chaos decreases until, after about an hour, the product is ready for use. This is applied to the fields in spray form towards evening within two to three hours after preparation and before the accumulated energies have dispersed.

In many mixing devices, when not mixed by hand, the vortices are created by motor-driven paddles rotating first in one direction and then the other. Many of the mixing vessels are cylindrical but it would obviously be preferable if

these vessels were of egg shape (as discussed earlier). Moreover, in lieu of the paddles to generate vortices, a simple single-bladed impeller like the head of a golf club mounted through the bottom of an egg-shaped vessel (as shown in fig. 19.11<sup>8</sup>) would achieve the same results with greater economy of motive force.

The apparatus shown here is of a type Walter Schauburger used to infuse carbon-dioxide permanently into water under a partial vacuum. Instead of steel or galvanised iron, the vessel should be made of fired clay, wood or copper, and mixing should be carried out in the open on the ground (not on reinforced concrete slabs) so as to permit the insuction of both cosmic and geospheric ethericities.

If stirred by hand the quality of the energies generated can be further enhanced by classical or Indian music or by what was known and practised by some of the older Central European peasant farmers in a ritual called 'Tonsingen'. The German word 'Ton' has a two-fold meaning, as either clay or tone as in music. Here Viktor relates an event where one evening he came upon a farmer bent over a wooden barrel stirring the contents. This peasant's farming methods were very unusual, but he nevertheless achieved extraordinary results with them, far surpassing those of his neighbours, which was why Viktor went to see him.

As Viktor watched him stir the contents to the left with a large wooden paddle, he sang in rising tones, only to change to descending tones when stirring to the right, but all the while crumbling pieces of aluminum-bearing clay into the water. After about an hour of these not wholly musical sounds, the peasant declared that he was finished and that the mixture was now ready for spreading over the meadow the following morning. This was done by dipping a bunch of small, leaf-covered branches into the barrel and then flicking the energised clay-water emulsion over the ground in a manner similar to the sprinkling of Holy Water with palmfronds on Palm Sunday.

In essence, the energies generated in this way are the result of the combination of two phenomena already discussed. The energies derived through the bio-dynamic procedure of forming and re-forming vortices are essentially the same as those created by the longitudinal left-hand/right-hand alternating vortices in naturally flowing rivers (discussed in chapter 13 with regard to Viktor's 'Energy Cannon' (fig. 13.14)). With 'tonsingen', however, we are more concerned with the encapsulation of the harmonies of the chanting (as formative energy) in the walter's 'memory' (see discussion on homeopathy, chapter 9), which must be transferred to the waiting plants before the resonances abate and the water 'forgets'.

## Notes

1. Tau mag, Vol.146, p.II, 1936
2. Our Senseless Toil, Pt.I, p.13.
3. "The Spiral Plough" ("Der Spiralpflug") by Kurt Lorek, Implosion No.8, published in Germany by Aloys Kokaly (dee'd). Publication of Implosion now continues with Kurt Lorek, Windschlagerstr. 58, 77652 Offenburg, Germany (tel: +49 781 73541).
4. From the Schauburger archives.
5. The Survival of Civilisation, self-published by John Hamaker and Don Weaver.
6. Further detailed information on rockdust can be obtained from:
  - Don Weaver, P.O.Box 1961, Burlingame, CA. 94010, USA.
  - Joanna Campe, ed. of Remineralise the Earth., 152 South St, Northampton, MD 01060, USA.
  - Barry Oldfield, Pres."Men of the Trees", 3 Over Ave., Lesmurdie 6076, W. Australia.
  - Das Buch von Steinmehl by Helmut Snoek: Orac-Pietsch, Germany.
7. Alex de Podolinsky's work is fully elaborated in The Secrets of the Soil, by Christopher Bird: Harper, New York
8. Austrian Patent No.265991.

## THE GENERATION OF FRUCTIGENIC ENERGIES

Viktor Schauburger also had concepts similar to Rudolf Steiner's biodynamics for the production of natural fertiliser. His ideas and their practice, however, do not necessitate the use of the thousands of cow horns presently employed by de Podolinsky. Those millions of horns are only available through the increasingly widespread consumption of beef and other meats, which from about 2 million tonnes in 1950-52 rose to 11 million tonnes in 1984<sup>1</sup>. This expansion, however, has taken and is continuing to take a serious toll on the ecology and environment of the producing countries. A recent scientific study in Costa Rica, for example, showed that for every beef carcass exported, 2 1/2 tonnes of top soil were irretrievably lost through erosion. Quite obviously, such widespread damage is totally unsustainable.

Moreover, in view of the increasing movement away from a predominantly meat-eating diet in many Western countries, a gradually accelerating decline in meat consumption can be envisaged, which will eventually put a stop to the supply of cow-horns. This movement is now growing very fast due to the increase in heart disease and cancer associated with the overconsumption of animal protein and the moral implications of intensively cruel industrialised methods of meat production, so graphically depicted in all their horror by C. David Coats in his book *Old MacDonald's Factory Farm*<sup>2</sup>. Amongst other countries in the so-called 'civilised' world, in Great Britain for instance the num-

ber of vegetarians has doubled since 1990, representing 7% of the population or 3.1 million people<sup>3</sup>. This is an enormous acceleration in changed awareness which, if manifested on a world-wide basis, would inaugurate equally far-reaching changes in the present balance between pastoral and arable agriculture.

Purely from the point of view of acreage economics, which must be taken into account in view of the rising world population, whereas a meat-eater requires the produce from about 1.6 acres to survive annually, a vegetarian needs only 0.66 acres, or about 41% of the first figure. Any system therefore, which enhances fertility both quantitatively and qualitatively without the need of large animal-based inputs is certainly preferable.

In our examination of biological farming methods, we have moved from the inorganic to increasingly higher organic and energetic processes. In addition to those already discussed, there are further ways to enhance and strengthen growth and fertility. These involve the amplification of the Earth's fructigenic, qualigenic and dynagenic ethericities, which were described in chapters 4 and 5 as aspects of the Sun's fertilising role, and which are the spiritual driving force of life.

Because of their close intercommunion with the higher dimensions of being or existence (viz. levels c<sup>4</sup> to c<sup>6</sup>, chapter 4 - 4.6), these energies operate at extremely high

frequencies. This means that their formative influences are correspondingly more powerful and their effect on the pattern of physical manifestation greater, for they are the messengers of the Will-to-create and the power source of the idea of what is to be created. If these ethericities can therefore be multiplied artificially, but according to the laws of Nature and the nature of the ethericities themselves, then it should be possible greatly to promote healthy growth and fertility.

Thus, apart from a purely sexual process of procreation, we are here confronted by a process of higher genesis with the ability to endow quantity with quality.<sup>4</sup>

Viktor Schauburger

To recapitulate on these ethericities briefly, fructigens are those essences that produce greater fertility, whereas qualigens create greater quality and dynagens generate higher intrinsic energy. To some elements at a lower more immediately physical level Viktor Schauburger ascribed certain male and female attributes or temperaments, silver, zinc and silicon being paternally oriented and gold, copper and limestone maternally oriented.

As we saw on p. 84 (fig. 5.2), the natural movement of the female essences expands outwardly from the centre of the Earth, propagating horizontally at the Earth's surface. At all levels, however, they interact or interbreed with the seminal substances of the Sun, whose natural direction of movement is along a plane perpendicular to that of the female, the energetic residues thus produced being expelled as physical growth.

Here the form of growth itself is dependent on the relative proportions of the differently oriented energies. If the plants to be fertilised have a predominant tendency to vertical growth, such as wheat, sugar cane and maize, then more paternally oriented elements should be added to the mixture as these are associated with vertical (i.e. phallic) movement. If the natural form of the plant is more horizontally inclined, then the emphasis should be towards the maternally oriented elements.

The seeding of the soil with immaterial energies was also long known to the Tibetans who buried their so-called 'Treasure Vases' in the ground in certain propitious places. These, filled with precious stones and metals, were believed to emit wholesome energies which enhanced and protected the environment. The Tibetans also considered that gold and other precious metals were best left undisturbed in the ground, similar to the way the Australian aboriginals and the Hopis feel about uranium as an emitter of energy.

Viktor Schauburger's vision for promoting a greater abundance of creative animating energy, of fertility and rising quality, involved the creation of what he referred to as 'amniotic fluid'. This required the liquid intermixture of the above elements of silver, zinc and silicon (male) and gold, copper and limestone (female) together with other vegetable or animal residues in a suitable galvanic container. The respective negative and positive polarities of these substances gave rise to certain anodic and cathodic functions enhancing the dissociation, association and higher reconstitution of the contained elements into a liquid brimming with germinating potency.

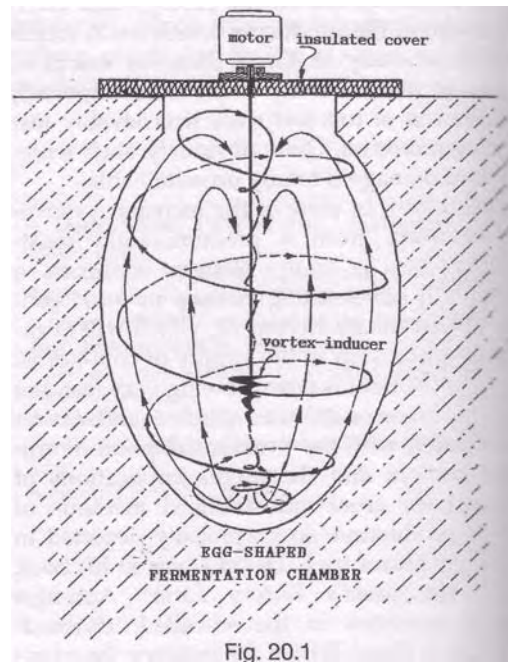


Fig. 20.1

Once again this requires the use of egg-shapes and, in particular, the arrangement shown in fig. 20.1. This egg-shaped cavity or fermentation chamber is scooped out of the ground, about 2 metres deep, and faced with aluminium-bearing clay. As a more permanent installation it may also be lined with natural materials such as wood or stone. Burnt material such as brick, having been exposed to fire, is less desirable. If timber is used and the chamber is constructed with wooden staves like a barrel, the whole should be held together at intervals with copper or copper-alloy bands and bedded in sand in the same way as the wooden water mains described in chapter 14.

Once completed and ready for use, then all varieties of waste matter such as stable-manure, kitchen refuse and even human excreta are added, in as fresh a state as possible and broken down into the finest particles. These should then be mixed with liquid manure, when available. After filling the lower third of the chamber in this way, the remaining space should be filled with well-oxygenated, juvenile rainwater or surface water, well exposed to the Sun. The whole arrangement should be thoroughly insulated against light and heat, so that the developing concentration of energies arising through the interaction of cosmic and geospheric ethericities can neither escape nor be dissipated.

Having been created out of the most thoroughly rotted elements of former life, these emanations are the most natural fertilisers, which have metamorphosed their erstwhile spaciality (spacial volume) to such a degree, that they can only manifest themselves as highly dosed (concentrated) energetic matter.<sup>5</sup>

Viktor Schauburger

As with the egg-shaped compost heap described in chapter 19, powder or filings of copper and zinc, with small quantities of silicon and limestone, should also be added to stimulate the immaterial energies of different potential. Particles of gold and silver can also be beneficially introduced, the very much higher financial outlay probably being well

repaid by a corresponding increase in health, fertility and productivity.

Towards late afternoon or at night, a small electric motor is switched on which drives a vortex-inducer made of a biometal (silver-plated copper). The vortex-inducer itself is mounted on a hard copper or phosphor-bronze shaft and is located in the bottom third of the fermentation chamber, its rotation causing the cyclical vortical circulation of the contents. In other words, the liquid is moved in the 'original' or planetary way, which, according to Viktor Schauburger, has the following effect:

....'planetary motion' is characterised by forces that strive to reach the central point and reduce the outward pressure on the peripheral wall-surfaces. They generate reactive forms of cold and lead to specific densation. Planetary motion involves the natural, animating, centripetalising acceleration of mass, which initiates higher-grade fermentation processes of an invigorating nature in the bipolar mixture of basic elements. The end-product is biomagnetism, a reproductive, regenerative and upwardly evolving form of energy.<sup>6</sup>

Not only is biomagnetism generated, but the overall energetic potential of both paternally and maternally oriented substances is increased through the alternation between centrifugal (outbreathing) and centripetal (inbreathing) pulsations, during which process the contents are vortically cooled towards the all-important +4°C anomaly point. As the chamber is egg-shaped, no particles are left unmoved and, ultimately, all the waste is atomised into the smallest possible particles, thereby producing a very high homeopathic rarefaction, Viktor stating in this regard that:

In terms of homeopathic principles and attempts to produce super-dilutions in order to still the 'specific' hunger of the plants, the more dilute the fertilising agent, the more it approximates the character of the above ethericities, thus facilitating further interactions that in turn result in increased growth.<sup>7</sup>

By mixing the elements of Earth and Heaven in this way, what Goethe called the 'connecting link' is created, which in turn gives rise to the generation and accumulation of a high

geospheric charge which cannot escape, due to the external insulation. In the form of a highly active negative or fructigenic potency, a condition that Viktor described as "a hungry voluptuousness akin to nymphomania",<sup>7</sup> it combines with the water, which becomes crystal clear. Like de Podolinsky's '500 mix', it is also free of unattractive odours and indeed is sweet-smelling.

Viktor compares this process to wine-making, where sweet and turbid grape-juice matures into clear, relatively dry wine in a cool cellar. The maturation of good wine, however, may take a year or more, whereas this extraordinarily procreative liquid takes only two to three nights to prepare, weather conditions permitting. When broadcast over the fields in the evening, it attracts the predominantly paternally-oriented atmospheric energies in preparation for fertilisation by the Sun's energies the following day.

Here again we are concerned with the interaction of almost non-spacial energies through which the ur-genesis or out-fall of physical matter takes place through the partial solidification of the discharged precipitates (energetic waste products of the higher, 5th dimensional energies, due to the expulsive effects of heat and light, which Viktor Schauburger called "4th dimensional mediatory substances".) However, because these precipitated energies are non-spacial, the extent to which the chamber can be charged with them is virtually unlimited.

In this fourth-dimensional state these ethericities, whose natural direction of propagation is horizontal, enter the plant itself through the root-protoplasms, the little sacs or vesicles of proto-water or amniotic fluid attached to the root-tip. Like dew, another form of proto-water formed on the tips of blades of grass during the night and early morning, these vesicles, too, collapse if exposed to light and heat. This is why the greatest care must be taken when replanting small seedlings or saplings, which should only be done at night in order to keep injury to a minimum.

These delicate fragile root-protoplasms act as mediators and transform the nutritive energies that the plant will absorb. Depicted

in Viktor Schauburger's charming sketch in fig. 20.2, he describes the process as follows:

No plant is actually nourished by dissolved matter, but rather with 'ascended', nutritive entities of geospheric provenance in a fourth dimensional state. These diffuse ethericities can only enter the sap-stream via the root-protoplasms, where they are fertilised by diffuse oxygenic ethericities. The higher outbirth of this emulsion (ur-procreation) is an ethericity that belongs to 5th dimension. These concentrations of matter-energy emit negative, hyper-charged emanations in all directions and bind the positively-charged ethericities entering through the skin or the bark. Some of this emulsion solidifies and whatever is subsequently manifested, is what we call 'growth'.<sup>8</sup>

Another version of this egg-shaped in-ground fermentation chamber is shown in fig. 20.3. This one, however, is not power-driven and fermentation takes up to six weeks, once again depending on external climatic factors, hotter periods having a retarding effect on the necessary cool or cold maturation processes. This chamber is not sealed and insulated in quite the same fashion

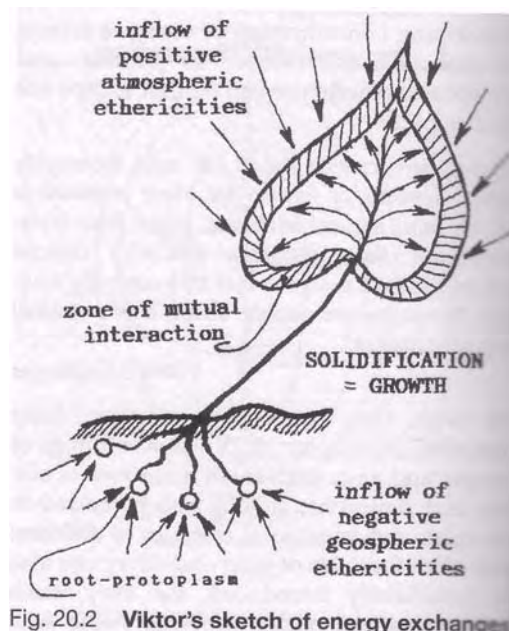


Fig. 20.2 Viktor's sketch of energy exchanges



as that in fig. 20.1, but is exposed to atmospheric and therefore male fertilising influences through the diffusing fabric of jute sacking or something similar, secured over the opening. Virtually the same paternally- or maternally-oriented elements are introduced, but internal vortical circulation is slower, driven by variations in external temperature. Owing to the currents generated between the substances of opposite charge and potential, and due to the lack of insulation, lateral pulsations of energies are produced which are fructigenic either paternally- or maternally-oriented, pulsation being inherent in all life processes.

Their direction of movement is either away from the chamber or towards it, according to the time of day or night. In the process, these emanations fill the germinating zone with the fructigenic stimuli vital for growth. The extent of the surrounding environment that is affected by each chamber and its life-giving formative potential will depend on the amount and the relative proportions of these male and female elements. According to Viktor Schaubberger, one or two such fermentation chambers are sufficient to permeate the soil over several square kilometres with

fertile substances imbued with the will to germinate.

One other soil-restoring method of Viktor Schaubberger's which should also be mentioned briefly, is for restoring the health of the soil in so-called 'sour' pastures, thereby increasing their fertility and attraction for grazing animals. In a process akin to the in-ground cisterns above, a largish wooden barrel held together by ropes or cord, but not with metal straps or fittings, is buried in the ground near the ailing field. The depth to which it is buried must be such that rainwater can be channelled into it along shallow trenches dug for the purpose. To prevent the entry of unwanted soil, the barrel is then covered with a lid to which dependent copper and zinc rods are attached in the ratio of 2 copper to 1 zinc. A hole about 5cm in diameter is cut in the lid and covered or otherwise closed with a good quality, diffusive material such as linen or jute sacking. After a while, a layer of green algae-like growths cover the surface of the water, which indicates that the contents of the barrel are ready for use. The sour field is then watered with this liquid and gradually the pasture grasses become 'sweet'.

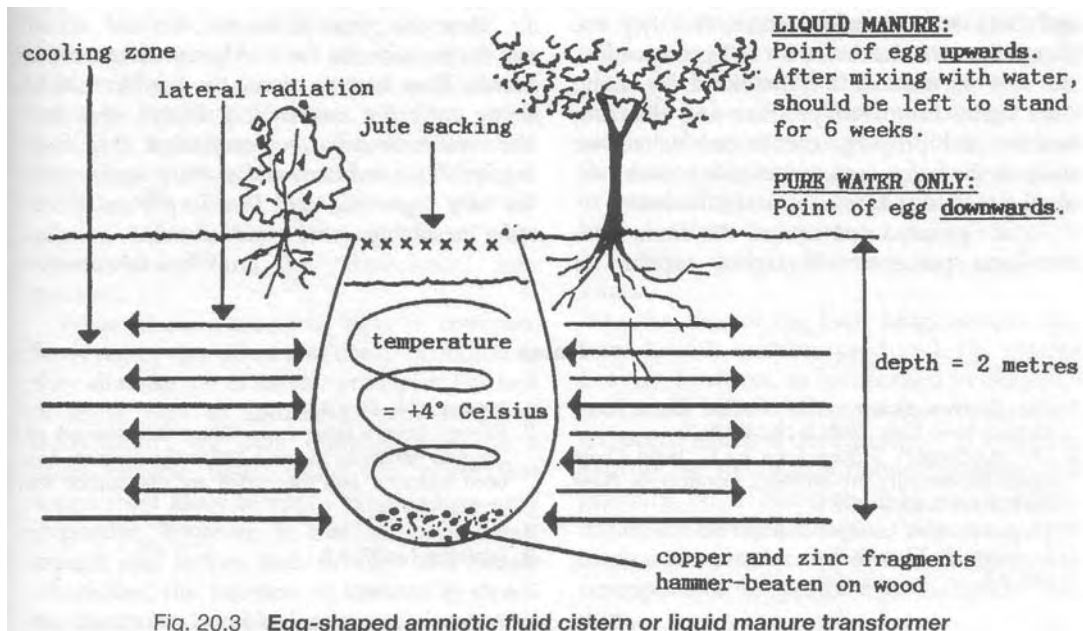


Fig. 20.3 Egg-shaped amniotic fluid cistern or liquid manure transformer



With these and the other natural methods of fertilisation discussed in the preceding chapter, there is therefore much that we can do to promote healthy and sustainable growth in agriculture. With this technology we have the ability to restore the soil, our only source of wholesome food, to its former state of high productivity and fertility, and even to increase it.

These means are not only far cheaper than the use of harmful artificial fertilisers and noxious pesticides, but they increase both the quantity and quality of food. At the same time, this will usher in the possibility of growing the same amount of food on a smaller area, thereby permitting the urgent reafforestation of those areas presently employed for meat production. Moreover, since the products of this new agriculture are of extremely high quality and vitality, it would be possible to satisfy the world demand for food with a smaller amount and still maintain healthy life. The systems of agriculture and food production that have been described here would well be able to support a world population even higher than the present, if that were deemed desirable.

The far greater abundance of food would greatly reduce people's fears for the future, modifying the defensiveness in our actions and behaviour towards others; for they are founded on the the desire for self-preservation, still a strong instinct in humankind. By eating such vastly improved produce and drinking healthy and properly constituted water, we shall, at the same time, increase our own personal qualities and potential as individuals.

As we pointed out earlier, the finer intuitive and perceptive thoughts, capable of

comprehending the intricacies of Nature's workings, can only be produced by high quality brains. If we are earnest in our desire to recreate the future and enter into a cooperative rather than a competitive association with Nature, then it is our duty to understand her ways thoroughly and hearken to the words of the English philosopher and student of Nature, Francis Bacon (1561-1626), who stated some 400 years ago, We cannot command Nature except by obeying her.

We cannot obey her laws, however, nor can we apply them towards the alleviation of all the present misery unless we can understand them. The first priority must be to implement these new methods on a world-wide basis for, in doing, so we shall be able to remove the scourge of hunger and destitution for all time. This will demand a complete reorientation in the present approach to agriculture, forestry and water resources management. Only then can truly economically, sustainable development and open peaceful human interrelations on a global basis be achieved.

A free people can only grow out of a free Earth. Any people that violates Mother-Earth has no right to a homeland, because in soils destroyed by speculation, high-quality races can find no abode, i.e. they are physical masses divorced of all connection with the Earth. Masses without roots perish. They have to travel the terrible road of decay until, like unsuitable fertilisers, they lose their stubborn wills and only when they have reached this condition, and starting again from the very beginning, will they be allowed to re-enter the mighty course of evolution.<sup>9</sup>

Viktor Schaubberger

## Notes

1. Our Common Future, p.119: Oxford Univ. Press, Oxford, New York. ISBN 0-19-282080-X.
2. Old MacDonald's Factory Farm by C.David Coats (quite incidentally my brother): Continuum, New York. ISBN 0-8264-0439-1.
3. The Independent, London, 21 Aug.1993.
4. Implosion No.37, pp.2-3.
5. *ibid.*, p.3.

6. Implosion No.45, p.3.
7. Excerpt from a letter from Viktor Schaubberger to Dagmar Sarkar in the mid-1950s; the diagram has been redrawn and annotated by the author for greater clarity.
8. *ibid.*
9. Implosion No.37, p.8.

# 21

## IMPLOSION

Before we begin our examination of the processes of implosion and its associated apparatuses, it is necessary to state at the outset that the specific description of Viktor's devices is rather problematic. This is because none of the diagrams, where there are any, precisely conforms to the descriptive material in the various texts. These tend to overlap, producing many blurred areas.

Moreover, on occasion, what appears to be the same apparatus has been referred to by a different name and the whole chronology of the development of each of these machines is very hard to unravel, some texts referring to what appears to have been a 1940s development, while the middle 1930s are mentioned in others containing similar information. It has therefore been extremely difficult to determine precisely which description refers to which device, or indeed how many devices there are. These have variously been called the "Repulsator", the "Repulsive", the "Klimator", the "Implosion Motor", The "Suction Motor," the "Trout Motor" and the "Biotechnical Submarine".

What all these machines have in common, however, is very silent and cheap operation as they all make use of similar principles. For lack of space here to address the full range of information<sup>1</sup>, we shall examine them on a more general basis, using the name that seems most likely to apply. What is here very important, however, is that all the various aspects and factors such as male and female ethericities, the function of vortices in rivers, bio-electricism and biomagnetism, temperature

gradients, etc., which have already been discussed, must also be borne in mind when considering the functioning of Viktor's machines because, in his philosophy nothing is to be seen in isolation or to be divorced from anything else. Central to Viktor's theories and the functioning of his machines is the creation of what he called the "Biological Vacuum" and we shall therefore begin by addressing it first.

### 21.1 The Biological Vacuum

In its simplest form, its mechanical effect is akin to the suction we experience when we place one of our hands over the plug-hole in a full bath after removing the plug. By uncovering and covering the hole with the palm of the hand, we can get some idea of the enormous power of suction, or the forces of implosion which, according to research by Prof. Felix Ehrenhaft, who helped Viktor Schauburger periodically, are 127 times more powerful than explosive forces.

In the case of the bath plug, we are concerned with suction produced by gravity. Gravity, however, as we learned in chapter 4 is octavely related to centrifugence, the counterpart of which is centripetence. In a manner akin to the interaction between suction and pressure on a common axis, the essential dimension of the jet engine, Viktor's apparatuses make similar use of centrifugence and centripetence to produce a biological vacuum.

This involves a vortical cooling process, sometimes in a sealed vessel, in which the contents are cooled to such an extent that, because of their extraordinary densation, a very powerful vacuum is created. If water is the medium used, for example, then for every 1°C of cooling the volume of its contained gases reduces by 1/273 rd. On the other

hand if normal air, which contains a certain quantity of water vapour, is used as the medium, the compaction of air to water involves a volumetric reduction of 816 to 1. At +4°C 1 litre of water weighs 1kg, whereas 1 litre of normal air weighs 0.001226kg.

An example of this implosive reduction is what happened to the American airship, the Akron, in the early years of airships. Filled with the inert gas helium instead of hydrogen, the latter having caused the explosion of the Hindenburg through self-ignition, the Akron mysteriously imploded on a cool and misty morning as its helium reverted to water. The reversion in this case means an almost instantaneous 1800-fold decrease in volume. This reduction in volume which is caused by a series of chain-reactions, is the biological vacuum and an ideal, environmentally harmless source of motive power. As a biological vacuum forms under conditions of continuous cooling, aeriform gases are transformed into water and the gases contained in the water itself are further transformed into volume-less substances.

In Viktor's machines, however, we are not only concerned with the spacial reduction of physical matter, but also with the concentration of its content of immaterial energies for, in its extreme form, the biological vacuum causes these elements to lose their physicalness and revert to their higher etheric nature (transition from the third to the fourth or fifth dimensions). This higher realm of being is what Theosophical teaching refers to as the 'laya point', the point of extreme potency, the eye of the needle as it were, through and from which all manifesting energies are propagated. Viktor called this process a 'higher inward fall', noting in his diary on August 14th, 1936:

I stand face to face with the apparent 'void', the compression of dematerialisation that we are wont to call a 'vacuum'. I can now see that we are able to

create anything we wish for ourselves out of 'nothing'. The agent is water, the blood of the Earth and the most universal organism?

This process of 'higher inward fall' Viktor was able to induce in varying degree in most of his devices, but principally in the so-called 'flying saucer' and 'biotechnical submarine' described later. Through the interaction between centrifugal and centripetal forces functioning on a common axis, he was able implosively to return or re-transmute the physical form (water or air) into its primary energetic matrix - a non-spacial, 4th, or 5th dimensional state, which has nothing to do with the three dimensions of physical existence. It was therefore possible in this way to remove matter or physical quantity from the physical world (creation of physical vacuity) and, owing to the non-spacial, other-realm quality of such a vacuum, to pack it as almost unlimited amounts of pure, formative energy into an energetic matrix akin to memory, or the progenitive idea of the thing itself. In the manner of a holograph, this conformed in every respect to the physical configuration of the reverse-transmuted substance. All that was required to release this huge potential, to unleash an enormous power and expansion back into physical existence, was the appropriate trigger, such as heat or light.

In terms of what is here involved and at what levels it operates, a recent paper on cold fusion that came my way in the middle of writing this book, provides new and interesting insights. This paper on low-temperature nuclear fusion, published by the Russian Journal of Chemistry<sup>3</sup>, refers to the 'layered spaces', in which all truly fundamental natural phenomena and energetic interactions take place. Affirming the earlier discussion in chapters 3 & 4 on the causality of higher non-spacial dimensions of energy that give rise to physical genesis, this paper further states:

In our 'laboratory' space we observe only the result of a process, but it takes place in another layer of the enveloping layered space. The authors then go on to state that ...a physical vacuum is not a 'curved void', as generally assumed, but a real material substance consisting of elementary vacuum particles resulting

from annihilation conversion of, for example, a proton and an antiproton or an electron and a positron. In other words, proton-antiproton and electron-positron vacuums are a physical reality. However, elementary vacuum particles exist not in our laboratory space, but in another layer of enveloping space, and for us, making observation in laboratory space, they are virtual particles. Such, according to FFT<sup>4</sup>, is the real nature, and not the formal nature, of virtual states: particles that really exist, not in our space, however, but in a space complementary (in the mathematical sense) to it. Elementary vacuum particles (EVP) and other virtual particles are states of the microworld that manifest themselves indirectly in laboratory space through the results of processes taking place in other spaces.

[My emphasis - CC]

I am almost tempted to say 'Q.E.D.', because this gives a very clear notion of what Viktor Schauburger conceived as the essential nature of the biological vacuum, although he produced it *inter alia* by rapidly cooling the medium of either air or water through the combined pulsating application of vortical centrifugal and centripetal forces on a common axis. In addition the "layered spaces" referred to in the above quotation also give a more concrete conception of those realms of reality Viktor referred to as the 4th and 5th dimensions, analogous to the higher vibratory energetic states of  $c^4$ ,  $c^5$ , proposed in chapter 4. As primary formative instruments, they could be likened to the unseen inner shells of an onion, which furnish the energies creating the outer form.

## 21.2 The Repulsator

The device shown in fig. 21.1 is a later development of Viktor's 1943 egg-shaped spring water-producing machine, which was constructed in Sweden by the Biotechnical Research Group headed by Olof Alexandersson (the author of *Living Water*). The purpose of this apparatus is to regenerate old, stale water or create new mature water from distilled water by in-rolling and out-rolling it through the creation of alternating right and left hand vortices, emulating the sequential alternation of negatively and positively charg-

ing longitudinal vortices at the bends of naturally flowing rivers. This takes place in a manner similar to the biodynamic production of '500 mix' described in chapter 19.

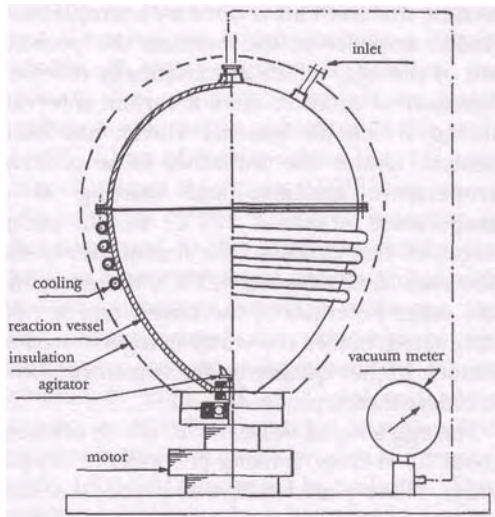
The whole idea is to make the water breathe and inhale various trace-elements and carbon-dioxide in a particular order to become mature. This is done by a simple one-bladed impeller at the bottom, the pointed end of the egg, which automatically reverses direction of rotation after a certain interval, during which an internal vortex has been created. Under the influence of a positive temperature gradient and starting at a temperature of about +20°C, in the initial stages of this process (the starting temperature should not exceed +27°C), the energetic and other potential of the base water is first eliminated, before the water is regenerated to a much higher quality as the transformation, or biosynthesis, proceeds.

The egg-shaped vessel itself, which contains about 10-11 litres, is made of copper or copper alloys, silver-plated where required, (i.e. biomaterials, which have catalytic and diamagnetic or biomagnetic properties). The outer surface of the casing should be well-insulated and encircled by cooling pipes, although a quantity of ice can be used as a substitute or the device placed in a refrigerator. This external insulation is also necessary to prevent any leakage of the bio-electrical and biomagnetic energies that the operation produces.

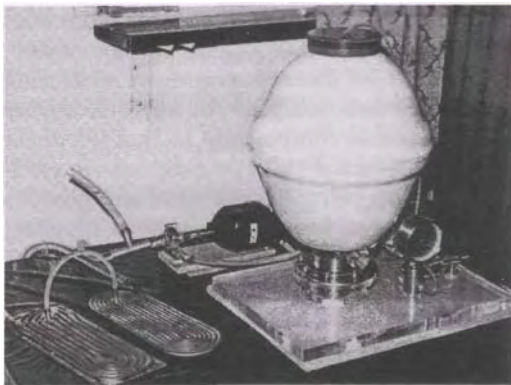
Before filling the egg, the base water, if not distilled water, should first be boiled to remove any bacteria. Boiling also eliminates any other residual immaterial 'memories', which may be directly harmful. The starting product is then analysed for any deficiencies in its chemical composition so that whatever is added is in the right proportion, the yardstick for this being the chemical and gaseous composition of high-grade mountain spring water. Under no circumstances should the base water contain any chlorine which would produce complications in its final reconstitution as high-grade spring water.

Once this has been done, the egg is filled to the brim with water in order to exclude all atmospheric oxygen and air. The inlet valve is then closed and about 4 litres of water drained

off as carbon-dioxide is simultaneously introduced. When the drive motor is switched on (about 300rpm), through vortical action and constant cooling the carbon-dioxide is absorbed into the water and is transformed into carbonic acid, creating a vacuum in the



A schematic diagram of the apparatus for biosynthesis. The ingredients for biosynthesis are added together within the airtight egg shaped vessel made of synthetic material. The contents are then set into a hyperbolic centripetal spiral motion by the specially-shaped agitator. A cooling coil provides the appropriate temperature control. The vessel is enclosed within an insulating shell of hydrocarbon material to restrict the loss of 'implosion energy' created, instead concentrating it within the vessel so that biosynthesis can take place. The vacuum meter monitors the 'biological vacuum' formed if biosynthesis succeeds.



Apparatus for biological synthesis of spring water, constructed by Swedish biotechnicians.

Fig. 21.1

process. This should not be allowed to form too rapidly as it disadvantageously affects the end product. The development of the vacuum can be monitored with a suitable meter, absolute atmospheres of between 0.8 and 0.96 being sufficient. As a structural form, the egg is well able to resist this without collapse, the main problem here being an air-tight seal, which must be maintained at all times.

Apart from the liquefaction of the carbon-dioxide, the effect of this vacuum is to cause the intimate assimilation of the other ingredients minerals and metallic trace-elements. Once the water has reached the anomaly point of  $+4^{\circ}\text{C}$  the process of cold oxidation begins. Through the centripetal formation of the vortices, the carbon and hydrogen become highly active and hungry for the now passive oxygen and other elements, which become thoroughly bound and produce a stable emulsion.

The whole operation takes about  $3/4$  of an hour and is preferably carried out before 9.00am, after which it should be left to stand in an external temperature of  $+3^{\circ}\text{C}$  -  $+4^{\circ}\text{C}$  for 24 hours, away from all light and heat, in order to become completely mature. If a thunderstorm is imminent, then production should be postponed until it has passed for due to the associated rise in the number of positive ions in the atmosphere, the process, which involves the generation of negative ions, will not be a success.

Initially the amount of carbon-dioxide used can only be determined by experiment, i.e. by tasting the finished product. If carbon-dioxide is noticeable, then too much has been added, whereas if the water is too hard, its calcium content is excessive. If the water is both refreshing and invigorating then the proportions of carbon-dioxide and magnesium are correct. Here the problem confronting all of us is to know what refreshing and invigorating water actually tastes like, because in the main we are used to adulterated water, which while wet does neither. However, if the water lacks a refreshing taste or is indifferently invigorating, both of which are qualitative factors, then in the first case more magnesium should be added and in the second more carbon-dioxide.

When drunk fresh from the egg, the effect of this water is to break down all the body's

excess acidity, which allows any over-acidified cells to breathe and take up oxygen, promoting a rapid return to health. When drunk the temperature of the water should not exceed +7°C and should be drunk in small amounts only. Above +9°C the quality of the water begins to deteriorate and precautions must be taken to ensure it does not reach this temperature. However, there is a time limit on its drinking, because 24 hours after maturation its diamagnetic energies disappear, which affects its healing qualities. According to Viktor Schauberg this water can barely be differentiated from high-grade mountain spring-water and, if sipped slowly by an impotent man, he will regain his potency.

For the proportions of trace-elements and other compounds in the mixture, the following is a guide for about 10 litres of water:

TABLE OF INGREDIENTS FOR 10 LITRES OF WATER<sup>5</sup>

Potassium (K)	= 0.0034 mg/kg	Chlorine (Cl)	= 0.0257 mg/kg
Sodium (Na)	= 0.0776 mg/kg	Sulphate	= 0.1301 mg/kg
Calcium (Ca)	= 0.0215 mg/kg	Bicarbonate	= 0.0638 mg/kg
Magnesium (Mg)	= 0.00039 mg/kg	Nitrite	= 0.0001 mg/kg
Iron (Fe)	= 0.00042 mg/kg	Fluorine (F)	= 0.0028 mg/kg
Manganese (Mn)	= 0.0001 mg/kg	Thiosulphate	= 0.00055 mg/kg
Lithium (Li)	= 0.00022 mg/kg	Malic acid	= 0.0754 mg/kg
Strontium (Sr)	= 0.00047 mg/kg	Metaboric acid	= 0.00497 mg/kg
Aluminium (Al)	= 0.0002 mg/kg	Free CO <sub>2</sub>	= 0.0054 mg/kg

In spite of having previously described the pernicious effects of chlorine in its pure form, in this context, however, chlorine is a necessary ingredient. Through the natural bio-electromagnetic ionising processes occurring during the maturation of the water it bonds with other elements, producing hydrochloric acid, for example, which acts as a catalyst and provides the optimum pH for pepsin, the major enzyme in the digestive juices.

### 21.3 The Repulsine

In a letter to Werner Zimmerman of 21st May 1936<sup>6</sup>, Viktor describes the Repulsine (fig. 21.1) as follows:

This machine (30cm wide, 50cm high) vaporises, purifies and distills water by means of cold

processes. At the same time, it will raise water to any desired height, for which almost no power of any kind is needed.

My machine is a body which consists of internal and peripheral nozzles, which replace the valves of present machines or supplement them...

My machines only require the impulse and manifest the reaction as an expulse, which not merely presses, but simultaneously sucks. This then results in the creation of resistance-less motion, due to the reciprocity which today's resistance makes use of as a "means of propulsion". [Here Viktor's use of the word 'resistance' may also allude to the unbending attitude of established science - CC]

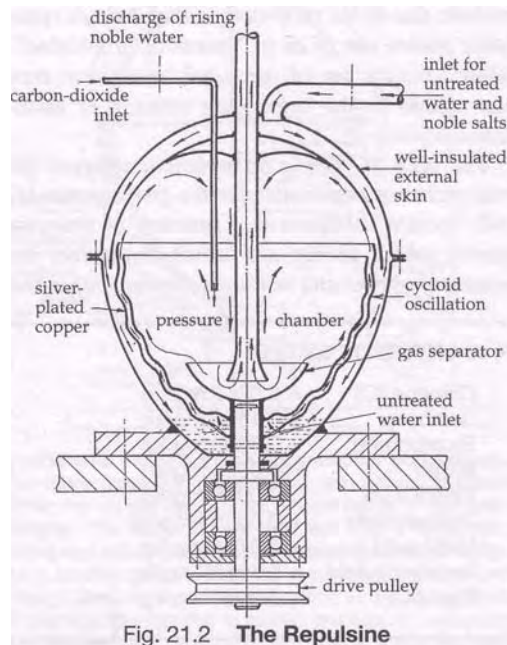
The body is merely an antenna, whereas the transmitter is responsible for the phenomenon we call "motion". Motion is a function of temperaments, which within and about themselves are possessed of plus and minus in diverse shapes and

sizes. Hence by altering the inner-atomic structure, we can displace the centre of gravity and thereby achieve that which we regard as pure, resistance-free motion; a motion, however, we have for so long not understood, because we ourselves are the resistance, which under the most difficult conditions, has to move itself in order to evolve.

The way this device functions is virtually the same as the Repulsator but, instead of being a sealed vessel in which the quantity of water is fixed, the operation of this apparatus is more or less continuous. The diagram, however, instead of the single-bladed impeller, shows two nested, half egg-shaped, wavi-form bowls made of silver-plated copper, mounted one above the other on the drive-shaft, which otherwise do not touch one

another. In the outer bowl, inlets are incorporated at the base to permit the entry into the serpentine cavity between the bowls of the raw water and ingredients entering at the top and flowing down the outside of the outer bowl. In this waviform cavity the distance between the two bowls gradually reduces towards the top.

In the process of flowing through, the water is subjected first to centrifugal force as



it is impelled from the central axis upwards and outwards, and then to a pulsating centripetal force which imprints it with certain vibrational energies as it cycloidally spirals its way up through the narrowing waviform cavity towards the open upper chamber. As we have seen, water cools when moved centripetally in vortices so, by the time this water reaches the upper, domed chamber it has already cooled considerably.

In this cooler state and having been moved centripetally, the water's existing content of carbonates becomes increasingly stimulated. With the introduction of carbon-dioxide the overall carbonate content is increased markedly. In combination with the downward cooling vortical flow around the central rising pipe which creates a partial

vacuum as the infused carbon dioxide is converted into carbonic acid, the increasingly hungry carbonates begin to bind the dissolved oxygen as the water cycles cycloidally around the inside of the inner bowl. In this process the water becomes increasingly dense and at the same time, imbued with levitational energies arising through centripetence and the negatively charged carbonates' unsatisfied demand for positively charged oxygen.

Since the area of greatest density is at the centre of the downward vortex immediately adjacent to the central riser pipe, whatever water reaches a temperature of  $+4^{\circ}\text{C}$  impacts on the smaller rotating dish of the gas separator and passes up the pipe. On the other hand any as yet undissolved gases and other elements, whose specific density is less and volume greater than the  $+4^{\circ}\text{C}$  water, are centrifugally impelled towards the exterior by the gas separator to rejoin the internal cycle until they too have been thoroughly cooled and absorbed.

Once the water has entered the riser pipe, which is of a design similar to the double-spiral pipe shown in figs.14.2 & 14.4, it then has the same composition and levitational energies as mountain spring water and will rise to any desired height. As such, this device is not a pump, as there is no pumping action, and it can therefore be driven with a fairly modest electric motor, which is merely required to rotate the nested, waviform bowls and gas separator alternately one way and then other as in the device discussed earlier.

## 21.4 The Implosion Motor

In this machine the water receives more or less the same treatment as previously described, namely the vessel is first filled to exclude air and then drained to a certain level with the compensating infusion of carbon-dioxide. This device, while at the same improving the quality of its drive-water, is principally aimed at the generation of power in the form of electricity, although mechanical power can also be ducted off it by

attaching a pulley to the central shaft. The design shown in fig. 21.3 is the result of what I have managed to piece together from the various data in my possession and is intended to show the principle rather than an actual working machine.

The development of this machine provided Viktor with many headaches, because the whorl-pipes, the major components of the device, were both extremely difficult to design proportionally and equally difficult to fabricate. Viktor Schauberger based his initial design for these whorl-pipes on the shape of a Kudu antelope horn, the proportions of whose spiral shape and reducing diameter approximate the Golden Section ( $\Phi$ ). Its configuration is also that of the cycloid-spiral space-curve, which is the radial->axial path followed by the 'original' motion, or form-creating movement.

As a further refinement, whereas the overall cross-sectional profile of the whorl-pipe is egg-shaped (as shown at the top right hand corner of the diagram), in its finished form a 1/4 egg-shaped indentation is incorporated, which runs for the full length of the whorl-pipe and which, viewed as a cross-section along the length of the pipe, either rotates in the same direction as the spiral twist of the pipe (left hand pipe on the diagram), or in the opposite direction (right-hand pipe on the diagram). Remembering the free-flowing function of the spiral-helical pipe (No. 2) in the Stuttgart investigation (chapter 14), the shape of the whorl-pipe directs the water away from the pipe walls, thereby reducing the friction and the associated resistance to a minimum or even a negative value. The effect of this centrifugal-centripetal dynamic is twofold: firstly, it imparts a double spiral motion to the water as it passes through, thereby cooling and condensing, it to its minimal volume; secondly, in association with certain catalysts (Viktor never revealed their true identity, but they may be gold and silver laminates, viz. patented spring-water device, chapter 15, or silicates, see below), it apparently triggers the inversion of the polarities of the contained substances. This may be the conversion from magnetic into bio-electric and electric into

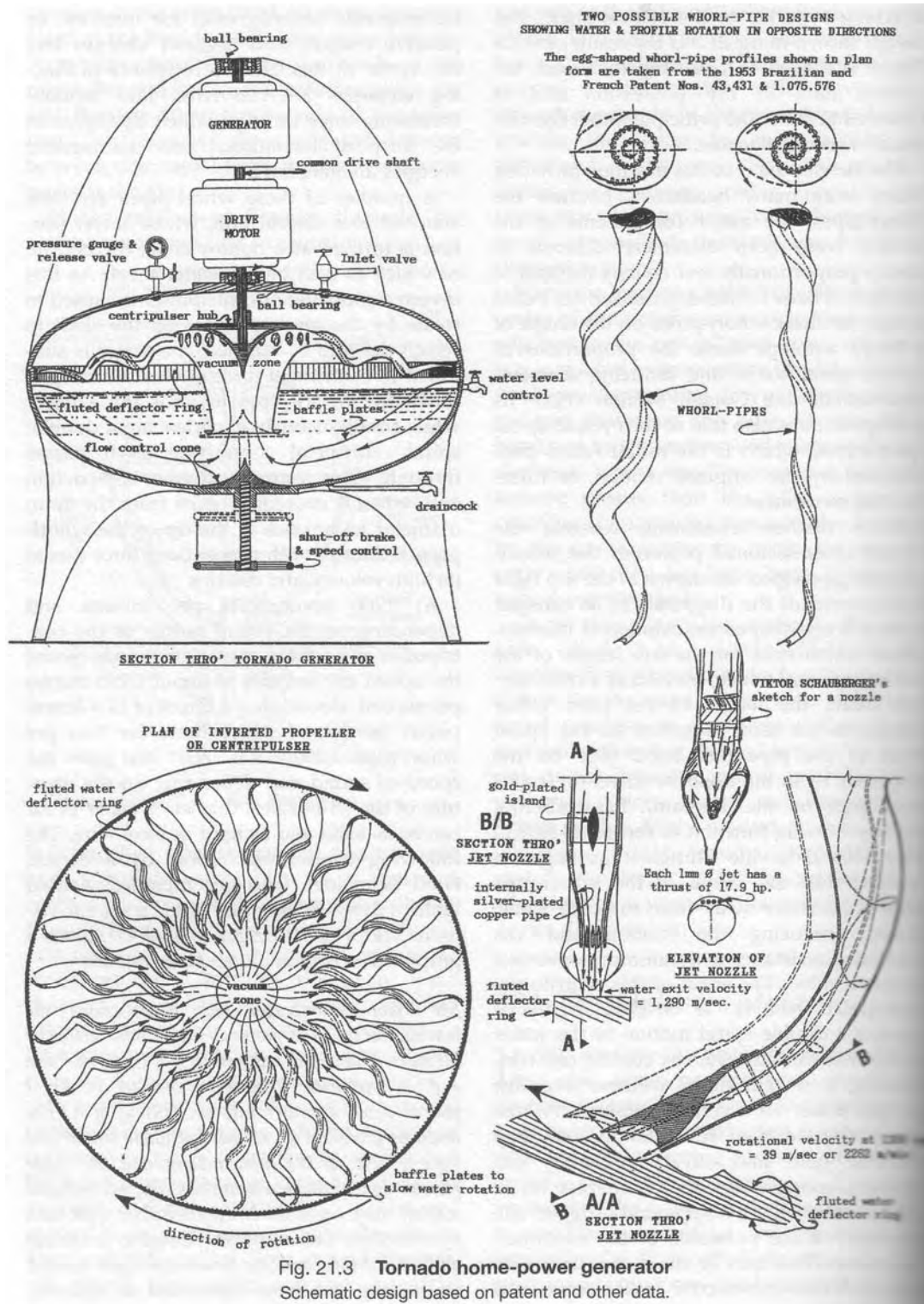
bio-magnetic (diamagnetic) for instance, or positive charges into negative charges and vice versa. In this process resistance-producing elements are converted into motion-enhancing ones through which dynagens in the form of levitational and diamagnetic energies are generated.

A number of these whorl-pipes are then attached to a central hub, whose lower portion is formed as a hollow cone, the bottom of which is well below water level. As this inverted propeller or centripulser is caused to rotate by the electric motor on the shaft to which the hub is attached, the water is subjected to centrifugal force as it is centrifuged down the whorl-pipes towards the exterior while simultaneously experiencing a double-spiral centripetal contraction as it passes through. This causes extreme compaction and, when it eventually exits from the 1mm diameter jet-nozzles at the tip of the whorl-pipe, it does so with tremendous force due to its high velocity and density.

At 1200 revolutions per minute and depending on the actual radius of the centripulser as a whole, the original texts record the actual exit velocity at about 1,290 metres per second, developing a thrust of 17.9 horsepower per jet, of which there are four per whorl-pipe. 1,290m/s is about four times the speed of sound and depending on the aperture of the jet-nozzles, this jet of water or air can be as solid and as hard as steel wire. The following eye-witness report by a certain Gretl Schneider who accompanied Arnold Hohl, a Swiss during one of his frequent visits to Viktor Schauberger in 1936-37, gives a graphic description of this phenomenon':

Mr. Viktor Schauberger has demonstrated the machine to me. The previous huge construction is no more. It has been reduced to half its former size and in operation develops enormous power. I poured a pot of water into the bottom of it. The machine produced an almost inaudible sound and then a 'pfft' in the same instant and the water pierced right through a 4cm thick concrete slab and a 4mm thick super-hardened steel plate with such force that the water-particles, invisible to the eye due to their high velocity, penetrated right through all clothing and were experienced as lightning





needle-pricks on the skin. Water-glass was also passed through and solidified in 5cm long hairs on the outside of the casing, like bristles.

While Gretl Schneider may well have thought that all she had poured into the machine was common water, it was more probably water highly charged with silicates (compounds of silica and oxides - see chapters 11 & 13), since what was emitted was water-glass ( $\text{Na}_2\text{SiO}_3$ ), a white substance formed of a solution of sodium silicate and water. With properties, some catalytic, that Viktor considered vital to healthy full-bodied water by way of emanations and particulate matter, it was through the constant corrosion of quartz and silica-bearing rocks that water was enriched with fresh elements and charged with pure energy (effect of triboluminescence - see chapters 8 & 13). Moreover, the natural oscillating concentrative vortical flow of healthy water in streams also produced his 'emulsions' from the fine dispersions of minerals and trace-elements, no doubt also comprising silicates, which in the manner described below endowed the water with those upstream-moving levitational energies that enabled trout or salmon to surmount high waterfalls. In their passage through this machine, the natural movement of such emulsions and the processes associated with them were therefore faithfully copied. This intermixing, cohering function of vortical motion is also applicable to the creation of emulsions out of the gases and trace-gases of the atmosphere.

Using this machine in his research Viktor experimented with a number of different silicate suspensions as 'fuels' to drive it. Due to the rapid oscillation to which they were subjected in their whirling passage through the centripulser, both water and fine silica particles were homogenised through cooling vortical densation into a silica gel or colloidal solution, i.e. emulsions. In operation the outer casing of the device also noticeably cooled. Other references allude to the fact that vibrated quartz particles in a dispersed consistency or colloidal suspension apparently exhibit levitational properties<sup>8</sup>, which are further affirmed by experiments carried out in the mid-1920s. Here the exposure of a quartz crystal to certain powerful radio frequencies

(electromagnetic vibrations) produced astonishing results. From its initial  $15\text{cm}^3$  volume, the crystal increased in size by 800% and then, in company with the experimental apparatus weighing 25kg to which it was attached, levitated to a height of about 2 metres<sup>9</sup>.

With no names mentioned in the above eyewitness report, here again we are confronted with the problem of precisely which machine was involved, but it seems most likely to be the one described above. Returning to our consideration of the whorl-pipes themselves, the tips of the whorl-pipes on which the nozzle-units are mounted are angled in the same direction as the centripulser's rotation, here shown clockwise on plan. The original whorl-pipes themselves, which on the diagram radiate rather like spokes, may have been more curved and wrapped around the central hub in the direction of rotation as in fig. 1.3b.

The design of the nozzle arrangement depicted here was suggested by Viktor's own sketch, which shows a cup-shaped cavity like a scoop immediately behind the jets. The intent of this is to catch the full retro-pulsive or recoil blast of the near-solid exiting water as it ricochets off the vertically fluted or scalloped band of metal running around the inner periphery of the housing. Once sufficient revolutions have been attained, the effect of this recoil is to make the centripulser self-rotate, thereby relieving the driving motor of some if not all of its load. While as shown here that the four jets are aligned perpendicular to the plane of rotation and impact simultaneously at one point on the scalloped peripheral ring, a more continuous retro-pulsive thrust would be achieved if they were placed one behind the other horizontally. In this way each jet would then recoil off the scalloped ring at a marginally different time and angle.

As the electricity generator is mounted on the same shaft, some of the electricity it produces is returned to supplement the drive motor if necessary, the remainder being free energy for whatever purpose, which could be used, for instance, to drive either of the devices discussed previously. If this machine functions as Viktor maintains, then the generator ought to produce ten times more power than the

motor needs, in other words, there should be a nine-fold surplus of electric current.

In order to prevent the expressed water from continuing to circulate at high speed around the periphery of the containing vessel, vertical curved baffle-plates are fixed to the bottom and sides of the housing, which also direct the water back towards the central intake opening at the bottom of the centripulser hub, where it is immediately sucked upwards again with tremendous force to the waiting mouths of the whorl-pipes.

According to Viktor Schaubberger, a starter motor is not strictly necessary and the initial impulse can be given by hand-cranking or with foot-pedals. Indeed the problem as with most of his machines is not how to start it, but how to stop it without damage, due to its high velocity rotation and the extraordinary repulsive force developed at the end of each nozzle. For this, it has been suggested that the best way is to cut off the water supply, which in fig. 21.3 is done by raising the coolie-hat shaped cone normally resident on

the floor of the outer housing during operation. This is attached to a threaded shaft and is screwed up to close off the lower intake opening on the centripulser hub. Another important aspect, not to be forgotten, is that the whole machine should be very firmly anchored to the floor to prevent it rising into the air as a result of the powerful levitational forces generated in the process.

## 21.4 The Trout Motor and the Biotechnical Submarine

A further or parallel development of the Implosion Motor is the Trout Motor. It forms the nose cone at the bow of the Biotechnical Submarine, shown respectively in figs. 21.4 & 21.5, which combines both centripulser and the waveform configuration of the nested bowls in the Repulsine (fig. 21.2). This centripulser, however, does not incorporate whorl-pipes as such, but the vortical process is apparently induced through the attachment of

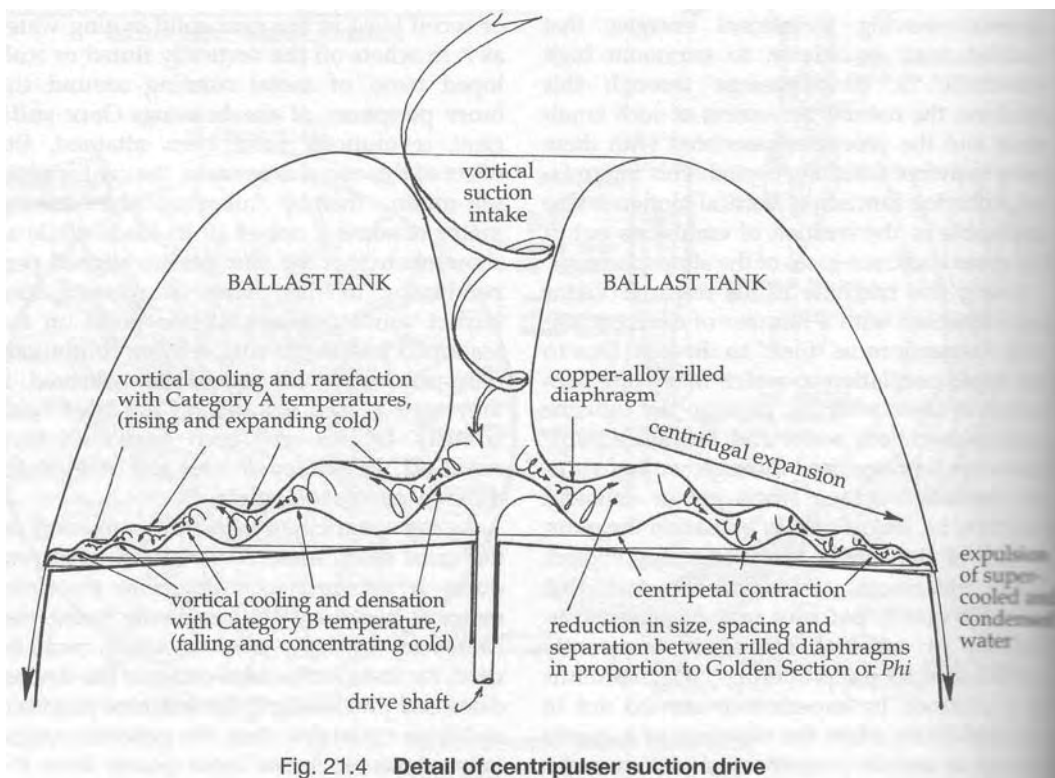
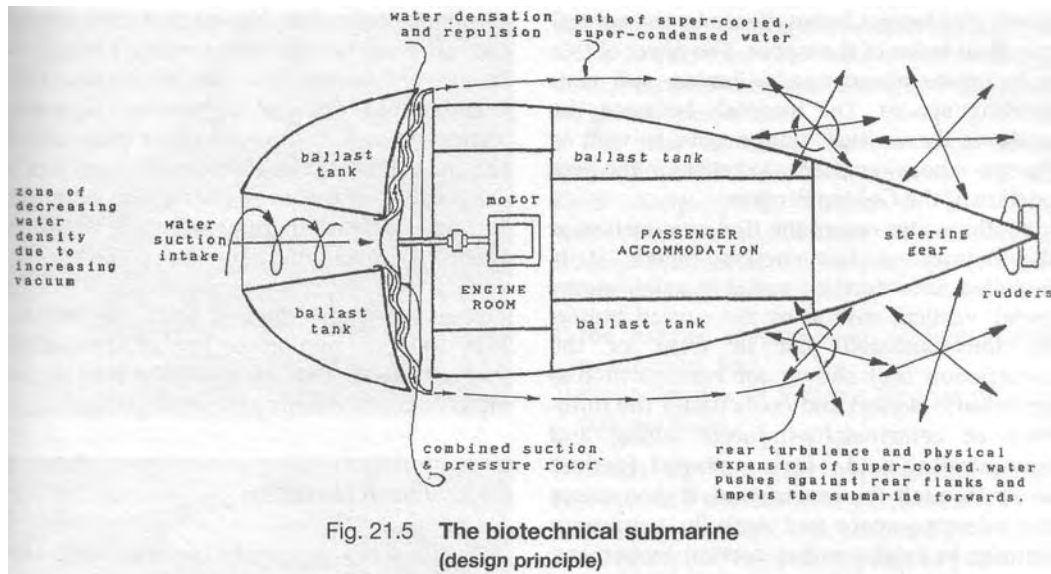


Fig. 21.4 Detail of centripulser suction drive



butterfly-wing shaped, curved foils to the internal surfaces of the two converging waveform diaphragms at certain intervals (not shown on the diagram), the effect of which causes the driving medium, either air or water, to flow through as a series of vortices. The action and function of these rilled diaphragms is similar to those of the gills of a stationary trout, whence this motor gets its name.

Two factors are active here. Firstly, in chapter 4 it was stated that according to Viktor, the extreme limits of any pair of dialectic magnitudes (fig. 4.6) could only reach a boundary condition of 96% in the physical world. Secondly, in chapter 7 two different systems of temperature, Types A and B, were both identified as rising and expanding, and falling and concentrating forms of heat and cold.

Using the media of air or water, with his machines Viktor was able, through the rapid alternation of centripetal densation and diffusion, to interrupt the normal reversion of falling and concentrating cold to heat, by converting the cold to a rising and expanding form. When this reached its extreme limit of 96% it was then reconverted to the falling and concentrating form. This produces an extremely rapid cooling with which Viktor was able to cool water from +20°C to +4°C within seconds.

In this process the absorptive capacity of the carbonates becomes so extreme under the pow-

erful concentrative effect of centripetence, which creates a strongly negatively ionised atmosphere, that the oxygen they have already absorbed, which becomes passive with cooling, is thoroughly bound and becomes equally reduced to spacelessness. In other words both carbonates and oxygen, together with any other elements or gases, are converted into a state of high-frequency, inter-dimensional, potential energy, which only requires slight heating to provide a massive expansion.

Going back to the two different forms of cold mentioned above, in fig. 21.4 we shall examine how their sequential alternation is achieved. As the waveform centripulser rotates, the water (or air if that medium was chosen) which is present between the two converging rilled diaphragms, is propelled towards the exterior through the action of centrifugal force. As it vacates this space, it is replaced by more water entering through the vortical suction intake, which creates a partial, and sometimes intense, vacuum in front of the submarine into which it is drawn. The intensity of this vacuum is dependent on the rotational velocity of the centripulser unit.

As can be seen on the diagrams, the waveform surfaces of the two diaphragms are not wholly parallel; that is to say, the respective crests and troughs of the two diaphragms are offset in their vertical relation, those of the

lower diaphragm being closer to the central axis than those of the upper. The effect of this is to create alternating widening and constricting spaces. The intervals between the peaks of these rilled diaphragms, as well as the space between them, decreases in the proportion of the Golden Section.

As the water enters the first constriction at the bottom of the suction intake, it is impelled into further radial > axial, centripetal, vortical motion by the curved butterfly foils situated just in front of the constriction (not shown for reasons of diagrammatic clarity) and cools under the influence of centripetally-induced falling and concentrating cold. Having slipped frictionlessly through the constriction, it then enters the enlarging space and, with the temporary transfer to axial > radial vortical movement, it cools further under the influence of rising and expanding cold.

To get some idea of what is here involved, if you hold the palm of your hand in front of your open mouth and gradually purse your lips as you exhale, the temperature of the exhaled air increasingly cools. Through the successive alternation of these two forms of cold, the water is cooled not only very rapidly but, by the time it exits from the peripheral ports it is extremely dense, i.e. spacially reduced, and its content of carbonates highly aggressive. In the same way that de-oxygenated water is expelled from the gills of the stationary trout and passes down its flanks, here too the super-cooled, carbonate-rich water is thrust towards the stern of the submarine.

In this form of propulsion, however, we are not principally concerned with mechanical effects of reverse thrust, which may contribute to a certain extent, but rather with the sequential effects of physical dematerialisation at the bow, followed by physical expansion at the stern. As shown on fig. 21.5 this transformed water flows towards the rear of the elongated, egg-shaped body of the submarine hull where it reacts with the outside water of different specific density, temperature and physical composition. This causes it to expand rapidly, not only because of the higher external temperatures, but also because it reabsorbs those elements which were precipitated during the near

instantaneous cooling (the precipitation of salts and minerals occurs with cooling under the absence of light and air - chapter 9, section 9.3). This rapid physical expansion, however, occurs between the body of water lying astern and the submarine itself. In pressing outwards against both of these resistances, it encounters the submarine's tapering hull and closes in against it, causing the submarine, like the stationary trout, to move forwards like a bar of slippery soap squeezed between the fingers. This forward motion is further intensified through the vacuum created at the bow by the rapid intake of water by the centripulser.

## 21.6 The Klimator

This device, apparently the size of a boy's hat, is a generator capable of producing temperatures belonging to Type A artificially. Viktor described it as a miniature copy of the Earth which, through its 'original' form of motion could produce both rising and expanding cold and falling and concentrating heat, the former being lethal to all pathogenic bacteria.

With very high revolutions, the copper-alloyed centripulser causes ordinary air to move above the speed of sound, which centripulses the air to the point of molecular collapse and gives rise to a hitherto unknown form of atomic energy. This can be intensified as desired by varying the rate of rotation, with the result that natural forms of either heat or cold can be generated. With this device, instead of the usual hot head and cold feet symptomatic of conventional heating systems, the space is radiantly heated from above downwards in the same way that the Sun heats the Earth's atmosphere. As a result, the whole space is evenly suffused with heat.

On the other hand, at a different setting, the space is filled with an even dispersion of rising and expanding cold, producing the fresh air experienced in mountainous regions. This variation in temperature conditions is achieved by the incorporation of a small electric heating resistance or element. When a high current is passed through it, the rotational velocity of the centripulser is reduced and warm temperature conditions prevail. On the other hand, when

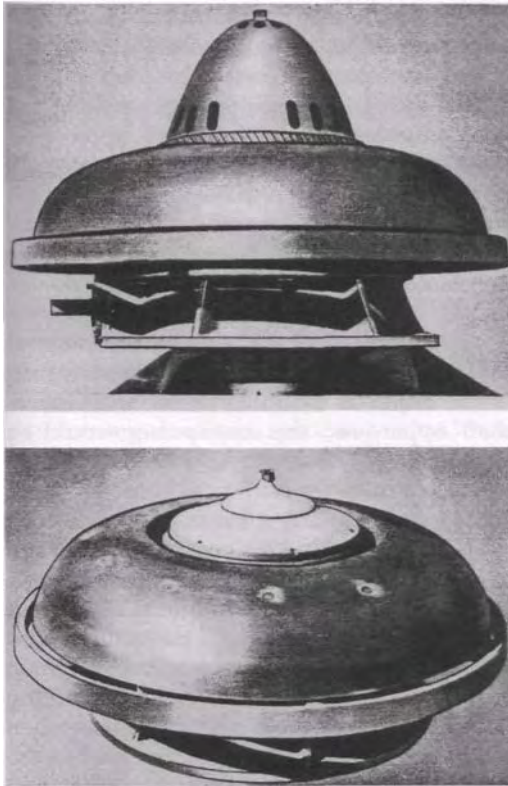


Fig. 21.6 Prototype A (top),  
Prototype B (bottom)

the heat of this is reduced, the rate of rotation is correspondingly increased, producing the mountain quality air mentioned above.

### 21.7 The Flying Saucer

As far as can be determined, the so-called 'Flying Saucer' functioned using slight modifications of the Trout Motor, but like the Klimator, rotated at much higher velocities, as the driving medium was air. The two prototypes shown in fig. 21.6 are different models of the same device (prototypes A upper and B lower). Whereas the Klimator is the size of a boy's hat, the size of the flying saucer is about 65cm in diameter. This may also be what has been referred to as a 'vacuum machine', which seems quite possible in the light of the condensing planetary movement of the media in the Trout Motor, since the centripulser can

use either air or water as the driving medium. There is also reason to believe that with this device experiments were also made using silica gel as a propellant.

The first of these devices was manufactured at Viktor's own expense by the Kertl company in Vienna in 1940 and was subsequently further developed at Schloss Schonbrunn. The purpose of these prototypes was two-fold:

- 1) the further investigation of free energy production, and
- 2) the validation of Viktor's theories on levitational flight.

Whereas the first case required the upper aerodynamic portion to be permanently fixed to the base, the 2nd case required its attachment to a quick-release coupling to permit its ascent once auto-rotation and the generation of levitational force had been achieved. To initiate the energetic process, a small high-speed electric motor was used, capable of producing between 10,000 and 20,000rpm.

Despite its compact size, this machine generated such a powerful levitational force that when it was first switched on (without Viktor Schaubberger's permission and in his absence!), it sheared the six 1/4" diameter high-tensile steel anchor bolts and shot upwards to smash against the roof of the hangar. According to Viktor Schaubberger's calculations, based on the data from previous tests, a 20cm diameter device with a rotational velocity of 20,000rpm would have generated levitational forces of such magnitude that it could have lifted a weight of 228 tonnes. Indeed, reports indicate that similar devices were built on a larger scale, as shown by an excerpt from an article about Viktor Schaubberger written by A. Khammas in Implosion magazine, which states:

There are many rumours about what Schaubberger was actually doing during this period, most of which suggest that he was in charge of developing 'flying discs' under contract to the army. It later became known that 'the 'flying disc' launched in Prague on the 19th of February 1945, which rose to an altitude of 15,000 metres in three minutes and attained a forward speed of 2,200 kph, was

a development of the prototype he built at Mauthausen concentration camp. Schauberger wrote, 'I only first heard of this event after the war through one of the technicians who had worked with me'. In a letter to a friend, dated the 2nd August 1956, Schauberger commented, 'The machine was supposed to have been destroyed just before the end of the war on Keitel's orders.'<sup>10</sup>

Here, and just before going to print, I was extraordinarily fortunate in having been presented with more detailed photographs of the flying saucer from America by Richard C. Feierabend, a former commander in the United States Navy". These show the lower portion of what on the evidence would appear to be prototype A and will greatly facilitate the explanation of its function. Before doing so, however, we should familiarise ourselves with its construction by dismantling it layer by layer in conjunction with the cross-section (fig. 21.7) and the relevant illustrations (figs. 21.8-21.12).

In fig. 21.8 the flying saucer is shown mounted on a heavy cast metal base that

incorporates the gearbox from which two shafts protrude, one horizontally and the other downwards. The high-speed electric motor was most probably connected to the latter in order to spin the whole upper portion up to the critical rotational velocities of between 10,000 and 20,000 rpm, above which autorotation begins. Through reduction gearing the horizontal shaft seems likely to have been used for drawing off mechanical power. As far as the direction of rotation is concerned, since most electric motors (viewed from the shaftless end) rotate clockwise, then as the motor is mounted below with drive-shaft uppermost, the centripulser would be imparted an anticlockwise spin when seen from above.

The outer cowling A made of 1.2mm thick copper sheet and with a central aperture can be seen in fig. 21.9, just below which there is an annular cast iron or aluminium ring about 5 cm deep and 1.5 cm thick projecting about 2cm beyond the cowling itself. This forms part of the base and is for ease of handling and protection of the whole apparatus when not in use. Through the aperture, part of the

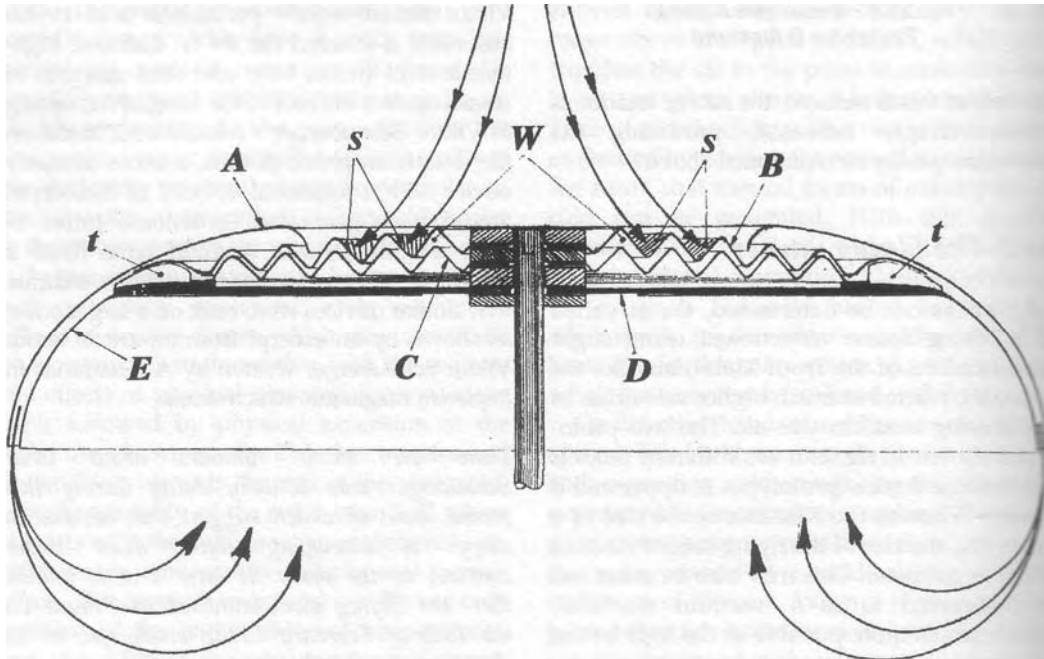


Fig. 21.7 Cross-section through Flying Saucer



immediately underlying concentrically rippled plate or diaphragm, also of copper, can be seen, which is depicted in toto in fig. 21.10. On this uppermost rilled plate B a series of slots *s* are incised at an angle on the inner sloping faces of the 2nd and 3rd rings, the slots on the inner 2nd ring being tapered towards the base, longer in length, more closely spaced and spanning from valley to crest. Through these the indrawn air is part sucked and part centrifuged into the space between plate B and plate C, the latter plate shown in fig. 21.11. When placed together as a unit, the combination of both plates and intervening waviform space *w* is what I refer to elsewhere as a 'centripulser', since in the form of multiple whorl-pipes or waviform cavity both essentially fulfil the same function. In comparison with the cross-section in fig. 21.4, where the centripulser element was composed from written descriptions, here the annular ripples of both plates B and C in fig. 21.7 are much more angular and their crests and valleys aligned vertically.

In comparing plates B & C, while both have 5 regularly spaced rings of equal size, the crest of the outermost being more rounded, plate B terminates with a 6th much wider peripheral cowl. Plate C, with only 5 rings, is nested inside an outer array of gill-like curvilinear turbine blades *t*, which are integral to plate D (fig. 21.12). While plates B and C are waviform, plate D is flat and either made of stainless steel, aluminium or silver-plated copper, as are the gill-like turbine blades. The slots between the blades curve first one way and then the other, the blade itself having a pronounced aerofoil shape. Attached to the underside of plate D is a further component, a dependent copper peripheral cowl E visible in fig. 21.11, which in association with upper cowling A directs the centripulser's emissions downwards and below the device. It also creates a concavity on the underside of the craft by which it is impelled upwards through the rapid expansion of the previously dematerialised or highly cooled and condensed air.

When assembled, plates B, C & D are fixed together at the hub with 6 bolts and separated with spacers. Cowling E is attached to plate D.



Fig. 21.8



Fig. 21.9

Cowling A and the outer rim of plate B on the other hand are fixed to the turbine blade array with 12 countersunk screws, plate C being fastened to plate D with 6 screws. Here, in view of the electromagnetic and atomic reactions generated during operation, it seems likely that the various components were partially or wholly insulated from one another, the above spacers perhaps being made of rubber or other insulating material. The size of the holes in cowling A would appear to confirm this, since they would allow for the insertion of both fixing screw and insulating sheath.

One item, noticeable by its absence, is the conical hub shown on both prototypes in fig. 21.6, which may be the vital component the Russians took from Viktor's apartment in



Vienna (chapter 1). If so, it would have been attached by a bolt screwed into the top of the central shaft shown in fig. 12.9. It seems more likely that the model examined here is indeed prototype A, because there appear to be no fixing points on the second ring on plate B corresponding to those on the hub of prototype B (fig. 21.6). The fact that the hub of this device totally covers the 3rd ring further confirms this, because the rapid intake of air would be too constricted. In contrast, the higher hub of prototype A has a number of slots in the sides and top, which would permit the free entry of air to the slots in rings 2 & 3. What actually happens inside the hub can only be speculated. Its half-egg shape, however, could suggest an inner, but inverted arrangement of the nested rilled bowls of the Repulsine described earlier (fig. 21.2), or some other form of centripetence inducing mechanism. So much for the construction.

Before we address the internal dynamics in more detail, it is first necessary to interpret Viktor's above reference to the "compression of dematerialisation", for which we must turn to basic physics. In particular, the characteristics of the three most commonly known nuclear particles, the electron, proton and neutron, which respectively have the following external charges and relative atomic masses: Electron -, 0.000549 kg; Proton +, 1.007277 kg; Neutron zero, 1.008665 kg. Since the neutron carries no external charge, it has hitherto been assumed that any internal positive and negative charges have cancelled each other out, i.e. there is no measurable external electric charge. According to current theory, because the neutron has zero charge it is able to penetrate the open structure of the atom and this way, through bombardment with a single neutron, a given element can be transformed into one with the next higher atomic number. Moreover, this 'uncharged' neutron is able to generate a magnetic field, although the origin of its 'magnetic-ness' apparently still remains an enigma.

Here let us take a leaf out of Viktor Schauburger's book and turn our thinking through 180°, for if the neutron, which has been observed to pulsate rhythmically and

has magnetic properties, is actually viewed as a magnetic or biomagnetic magnitude, then the whole picture changes and suddenly many things become clearer. Instead of a discrete subatomic particle, it can then be seen as a transpiercing, constantly moving force, the vibrant life-force of the atom, through which the atoms themselves evolve from hydrogen to uranium. It becomes the key energy-form that binds the nuclear particles together and which, in whole-numbered pulsations representing the entity - neutron, resonates with the electric fields of both proton and electron alike to form stable atomic structures.

In *Through the Curtain* by Dr Shafica Karagulla<sup>12</sup>, wherein the magnetic nature of the neutron is affirmed, it is also described as a 'sounder binder', i.e., a higher form of vibratory energy but not a particle. Following from the above, it is this binding ability that transforms the base material of the hydrogen atom (1 proton+ and 1 electron-) into higher atoms. Without the formation of the latter and their subsequent combination into molecules, no life, no physical structures of any kind would be possible. Magnetism or biomagnetism is therefore synonymous with vitalising, animating neutronic energy and in energetic realms the neutron has thus a similar function to water in the physical world.

Furthermore, if the neutron's cohering activity is braked, such as happens with paraffin wax for example, then radioactive decay results, which is analogous to the decline in the health and stability of a human if its regular 'pulsations' of good drinking water cease. It is also to be remembered here that it is biomagnetism as an expression of levitation which is responsible for the 'uprightness and right-side-upness' of all organic life. When the uplift of life-force decreases, the ponderous effect of gravity increases. Curiously enough, the combined masses of both electron and proton amount to 1.007826 kg, which is 0.000839 kg less than the 1.008665 kg mass of the neutron. This seem to furnish further confirmation of the necessity for the slight predominance of magnetism over electricism if life is to continue and upwardly evolve as discussed in chapter



Fig. 21.10

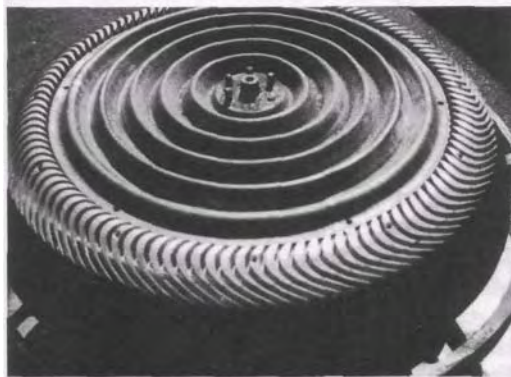


Fig. 21.11

4. Through their 180° reinterpretation and re-examination many other factors in physics may also corroborate this other view of the neutron.

With the above in mind we shall now postulate a process that could enable the saucer to fly. Leaving aside the unknown role of the half-eggshaped hub, in principle what may happen is this: Due to the centripulser's high rate of rotation, air is drawn into the serpentine cavity between plates B and C via slotted rings 2 & 3 on plate B, where it is subjected initially to powerful centrifugal forces that cause the air molecules to accelerate axially->radially away from the centre. In addition to being centrifuged, the air is made to oscillate rapidly up and down at the same time forming tight radial->axial vortices at each bend in the waveform cavity, which increasingly cools and condenses it. This oscillating air also induces the sympathetic

vibration of the two enclosing waveform plates, as happens with loud-speakers, which further enhances the rapid emulsification of the aeriform substances.

Exposed to higher and higher velocities and forces in this centripulsing process, the air molecules are subjected to express cooling and more and more extreme densation through the simultaneous interaction of centrifugal and centripetal force. As we have seen above, the transformation of air into water produces an 816-fold reduction in volume and at lower revolutions the centripulser may well expel a certain amount of water as a result. The vacuity created by such a reduction in volume, however, produces an increasingly powerful suction into which more air is drawn. This happens so rapidly that an area of atmospheric rarefaction or partial vacuum is created immediately above the saucer. As the process continues and with high-speed revolutions in the order of 20,000 rpm, both vacuum and densation become intense. Indeed the centripulsion and the intensity of densation become so extreme and the resultant close-packing of the molecules so tight that the molecular and nuclear binding energies or valencies are affected in a way that triggers the antigravity effect. Apart from molecular compression, a point is reached where a large number of electrons and protons with opposite charges and directions of spin are forced into collision and annihilate one another. As lower rather than higher orders of energy and the basic building blocks of atoms, they are upwardly extruded as it were out of the physical and into virtual states.

In other words, they have been compressed back into their 4th dimensional origins, creating what Viktor referred to as a 'void' in the physical matrix, which in turn increases the inward suction of air to fill it. This is no inert, empty vacuity, however, but a living vacuum of huge potential, for all it now contains is pure neutronic energy, which in the light of the above should be the most primordial of life-cohering essences and therefore originate from higher, more sublimely dynamic realms such as the 5th. Freed of its function as the magnetic 'cement' of the



Fig. 21.12

now dematerialised particles, it interacts and energises the atomic nuclei of its physical diamagnetic counterpart, the copper components of the flying saucer, endowing them with antigravitational properties that contribute towards the craft's ascent.

The other contributor to levitation is the expulsion of the densely compressed emulsion of molecules and atoms that have not been 'virtualised'. Passing through the aerofoil slits of the turbine blades, which diffuse and separate them prior to their exit between outer cowl A and inner cowl E, they subsequently expand with tremendous rapidity in the zone beneath the saucer, creating a strong pressure that thrusts it further into the area of rarefaction created above. In addition a glowing bluish-white discharge akin to ionisation is produced. In this instance, however, since no thermal effects are apparent apart from extreme cooling, we are here more probably concerned with triboluminescent bio-magnetic phenomena (chapters 8 & 13). Due to the mutual pressures exerted through exposure to such high compressive stress, the protons and electrons of the various elements in the dense aeriform emulsion quickly return to their former rest-orbits upon their release, and in so doing emit a cold bio-magnetic glow. The final point concerns the question of autorotation. This remains

problematic, because the key factor of the direction of rotation, while mooted above to have been anticlockwise, may actually have been the opposite. On strictly aerodynamic principles, the rapid passage of the air-emulsion through the aerofoil-shaped turbine blades (fig. 21.12) and its subsequent expulsion ought to create a 'lift' in a clockwise direction. This direction may indeed be correct, for in view of the vast magnitude of the forces in question, the extreme suction, extreme densation, extreme expansion, and in a certain sense the intense vacuum created over-unity supply of aeriform propellant, the whole apparatus may well disobey established laws and autorotate.

On the other hand, the levitative effect may have been produced by other means. Having inspected the device personally at Feierabend's home literally two days before this book went to print, the upper 'saucer' section appears to be securely attached to the lower heavy metal casting containing the driveshaft and gearbox. There is no indication of any quick-release mechanism by which the upper portion could detach itself from the lower, thus allowing the 'disc' to rise autonomously. From this it would seem that while it was able to autorotate, this particular device was destined for energy production as mentioned earlier. However, due to the extreme power of the levitation energies generated, it did so by accident, rather than by design. Recalling Professor Ehrenhaft's findings with regard to the light-induced movement of fine particles and the magnetising effect of light on matter in Chapter 1 where it was established that the forces involved in the spiral motion of the particles were 70 times stronger than gravity, then it may possibly be due to this effect that levitation of the device occurred. It has been reported that this machine emitted a halo of bluish-white light around the lower perimeter of the outer cowling A (fig. 21.9) when in operation, which has been described earlier as bio-magnetic light rather than ionisation. During the emulsion of the elements of the indrawn air, a higher form of triboluminescence may have been produced between the two rilled diaphragms due to the mutual 'abrasion' of the particles under extreme cen-

tripetal compaction, which would have infused and iridesced the whole of the interstitial space. As blue-white light it would have had a far higher frequency and intrinsic energy than red for example, and causing the particles of the air to spiral at extremely high velocities in the way described in Prof. Ehrenhaft's research. In the process they could well have been endowed with the same powerful antigravitational force, which, 70 times stronger than gravity, would have been of sufficient power to shear the anchor bolts cast into the concrete floor and lift the whole apparatus to the ceiling. These important questions, however, indeed all the processes described above, the effects and energies they produce and the extent to which they interact can only finally be resolved through experiment.

With the use of the various apparatuses described very briefly above, not only can virtually free energy be generated, but the whole system of transport can be revolu-

tionised, rendering the present use of environmentally polluting fuels and the machines they drive obsolete. Moreover, water of a supreme quality can be produced very cheaply, which will not only vastly improve the health of humanity as a whole, but also the fertility and quality of produce grown with its use.

As a final note while the production of sufficient energy is one of the major problems confronting the world today, despite the obvious advantages offered by these machines, it must still be remembered and emphasised that the whole basis of life on this planet depends on the increase in the amount of vegetation and forest cover. In order to bring about the change for the better that we all so fervently desire, it is therefore necessary to institute both energy and reforestation programmes simultaneously, the latter being given financial priority, for it is the one in most urgent need of attention.

## Notes

1. For full texts see the Ecotechnology series — Viktor Schauburger's own writings in four volumes: *The Water Wizard*, *Nature as Teacher*, *The Fertile Earth*, and *The Energy Evolution*, collected, translated and edited by Callum Coats, Newleaf, Dublin 1997-2000.
2. *Mensch und Technik*, Year 24, Vol.2,1993, (Spec.ed, para.7.7.8): devoted to recently discovered information on Viktor Schauburger contained in the Swiss, Arnold Hohls' notebook.
3. "New Approach to Cold Fusion" (Low-Temperature Nuclear Fusion), by I.L. Gerlovin, R.Kh. Baranova, and P.S. Baranov, *Zhurnal Obshchei Khimii*, Vol.62, No.1, pp.230-232, Jan.1992, published in English by Plenum, Article No. 0022-1279/92/6201-0193.
4. FFT stands for 'Fundamental Field Theory'.
5. "The Production of Noble Water" ("Die Herstellung von Edelwasser") by Aloys Kokaly: *Implosion* No.36, p.32.
6. *Mensch und Technik* (spec.ed.): pp. 42-43.
7. "Viktor Schauburger's Repulsator - Excerpts from an interview" *Mensch und Technik* vol.2, 1986, pp. 65-77.
8. p. 78, *ibid.* Synopsis of a report on the work of Kowski and Frost originally published with pictures in the September 1927 issue of "Science and Invention".
9. *Mensch und Technik* (spec. ed.): Para 7.7.9.
10. "Implosion" No. 83, p. 19, from an article by A. Khammas entitled "The Emergence of Biotechnology" ("Aufbruch der Biotechnik").
11. These photographs are of an apparatus, purportedly Viktor Schauburger's owing to its history and shape, although there are no identifying marks. In October 1994 it was given by Karl Gerchheimer to Richard C. Feierabend, a former commander in the United States Navy, who very kindly made the photos available to me in time for publication.
12. *Through the Curtain* by Dr Shafika Karagulla (dec'd), in a chapter on p. 194 the neutron is described as having magnetic properties and the source of what is commonly termed magnetism. De Vorss & Co., Marina del Rey, CA, 1983.

## LAST THOUGHTS

Having now moved gently through Viktor Schauberger's broad conceptual spectrum and its practical implementation, which has by no means been treated exhaustively, we have perhaps become aware of the scope that this completely new environmental and ecological paradigm offers the future. We have seen how the outpouring of energy in all its various dimensions and provenances is the primary cause, not only of ourselves, but of all we see around us, representing as it does the agency through which the originating idea is manifested by the Will-to-create.

As an expression of this higher desire, Life is procreated and projected into physical manifestation through the synthesis of dualities. The reciprocal interaction between pairs of opposing energetic magnitudes, the differences and diversity thus arising, produces the eternal pulsation and the ceaseless cycles that are life's hallmarks. This unstable state of evolutionary equipoise, founded often on extremely subtle differences in temperature, represents a particular level of energy. It can easily be upset if, through lack of understanding, effect is mistaken for cause, or worse, all these vital differences are expunged in the pursuit or imposition of uniformity.

Life is the manifestation of the harmonious interaction of individualities, each with its own qualities and particular capacities, which are impossible to compute. No two naturally created things can ever be truly identical because, in their creation they are the products arising from the influences

existing at a given time in a given space, a space that grants each its special identity and characteristics and which cannot give birth to any other entity because it is already occupied by the evolving entity in question. Therefore, a little to the right, a little to the left, a little up or a little down, the prevailing conditions are marginally different and, in consequence give rise to a marginally different form which, while very similar is nevertheless not exactly identical.

Recalling Goethe's poem in chapter 3, as individualities we are all inextricably interwoven into the vital matrix of life as the physical manifestation of vortical concentrations, or whirling, vibrating cores of the universal energy that dynamises this whole Universe. We therefore cannot separate ourselves from it or from one another and, could we but see all these energies with our naked eyes, we might truly appreciate how interconnected we all are with everything else. While science purports to be the greatest exponent of objectivity, it too must eventually admit that the parameters it defines are subjective in their origin.

What, after all, is measurement? Where do we start measuring and at what scale? This depends on what is to be measured; whether it is the distance between stars in light-years or the separation between atoms in angstroms. It is a purely subjective decision which yardstick is applied to which. Due to the fine attenuation of its energies, the extreme radius of action of the electron is today still not known with any degree of accuracy, nor where its energetic effect ulti-

mately ceases, some holding the view that it extends even to the furthest extremities of the Cosmos.

Should this be the case, where do we, as individuals, end and where do others begin? Where is the clear unequivocal division between you and me or between me and any other creature or organism on this planet? While at the level of the atom, the separation between one thing and another becomes problematic, at the level of electrons and the even smaller quarks this defies definition. We must, therefore, admit to ourselves that we too are part of every other. Each of us is Atlas, bearing the world upon his or her shoulders.

At any given moment the world is as it is because we, as individuals are in it. For when each individual, possessed of his or her own personal vibrations and emanations, electromagnetic and otherwise, passes away, the balance of the whole alters very slightly to restore a new state of equilibrium. Each of us has an inescapable responsibility for the well-being of the whole, for through the power of our thoughts, behaviour and physical actions it is we who largely determine the outcomes.

In all honesty, therefore, we can no longer declare that the ubiquitous impersonal 'they' should do something about it, for the buck stops with each one of us. Would we strive for a better future, we must ensure that our activities are harmonious and in accord with Nature's omnipotent laws, for it is through their contradiction and arrogant disregard that we have brought about our own undoing.

This process of devaluation and devolution we have instigated has been accelerating on its downward path in step with the acceleration of mechanistic materialism. With our more celestial connections thus conveniently buried and competitiveness rising under the desire for the acquisition of material wealth, we wished to become creators and masters of the world controlling supply and demand. So we, like the Prodigal Son, began to take this world apart piece by piece to see how it had been put together. Analysis of everything down to the smallest detail, while valuable as the dialectic counterpart of synthesis, became

the overriding goal, each scientific discipline splitting into further and further branches. The synthesis and ultimate unity of all phenomena have therefore been lost under the plethora of minutiae.

All the various branches of science are becoming increasingly splintered into smaller and smaller fragments and as each fragment analyses further, then another split follows and overall comprehension diminishes commensurately. More and more resonant systems of atoms are smashed in particle accelerators to try to perceive, for just one split second, the essential nature of the forces and energies that cohere them. What emerges in the patterns of destruction produced in cloud-chambers are spiralling energies whirling to left and right, endowed with either positive or negative charges, which either separate, forming tighter and tighter vortices, or impact together and vanish completely. Ultimately all that has been seen is a particular form of movement, but no clue is revealed as to what the quintessential nature of movement is and whence it originates.

Denying even the possibility of the existence of a higher direction of affairs, we have turned our back on the central source of light, the hub of the cosmic wagonwheel, as it were. As we stand on the spokes of this wheel, looking out into the darkness, and move further and further into the looming obscurity, our shadows lengthen and increasingly abstract and complicated theories are proposed in order to explain this false reality. Moreover, as we move out, the gap between one spoke and the next widens, communication between them becoming increasingly difficult as their common root lies so far away. There is no cohesion. Incoherence multiplies. Our analytical approach to life has therefore blinded us to the true realities and underlying interdependencies.

Religion has also constricted the minds of humanity, the word religion itself being derived from the Latin root 'religere', which means 'to bind back' or 'to tie down'. Personalised concepts of a God or gods above us have dimmed the majesty of the ECI - Eternally Creative Intelligence - and have set us apart and outside as separate

entities, instead of being contributing divinities within the body of the Divine. Through religion and its dogmas, a high fence has been erected between us and our rightful spiritual potential but, more importantly, between us and our full intercommunion with the ECI as represented by Nature. This has subjugated us initially to the dictates of an all-powerful Church, later to be followed by an all-powerful science.

Our station as the Chosen of God and being made in His or Her image has caused us to regard the Nature that nurtures us solely as our private preserve and as an object for exploitation. But what of the rest of Creation? Are not all other creatures also made according to the images of the ECI? For we certainly are not responsible for them. Despite all our scientific advances, even in genetics, we cannot actually create Life. We still cannot create that unknowable, unnameable spark that animates and quickens, however much we may poke and prod at what we have created.

These other creatures, too, are on the upward path of their evolution and since the procreation of new life-forms and fundamentally new species is beyond our power, we do not have the right to deny them their right to exist. Indeed the sixth of the Ten Commandments given to Moses states unequivocally "Thou shalt not kill!". This command is not qualified in any way and, if we assume that it is the true record of what was then stated, it should therefore be taken to mean precisely what it says. Its meaning is further amplified by verse 29 in Genesis:

And God said, Behold I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in which is the fruit of a tree yielding seed; to you it shall be for meat.

Through our sheer arrogance and supposedly 'special' position, however, we have perverted these directives to suit our own purposes and to absolve us from all responsibility for the death of lesser beings which, in our blindness, we do not see support our very existence. These, too, are infused with the spirit of the ECI and are part of the same intelligence that has given rise to our own

genesis. We should, therefore, adopt the Tibetan concept of 'Ahimsa', of harmlessness to all sentient beings, for such is the integrated inter-dependency of all life that whenever we harm the environment or even the smallest of creatures, we inevitably harm ourselves, and with their death we too are diminished.

While this may smack of rank idealism, we are nevertheless forced to admit that our present ideals and value systems have brought us no Utopia. While there have been tremendous improvements in many areas of human endeavour and compassionate understanding, despite the constant promises of recovery, the human world is still in total disarray both economically and socially, and full of conflict. Intolerance is rife with man against woman, sect against sect, nation against nation, while the rich are comfortably buffered against increasing poverty and privation with full bellies just as bulbous as the bloated stomachs of the starving.

More and more restrictions are placed on our freedoms of word and deed, ostensibly desirable and for the good of all, while their reverse side insidiously claps yet another shackle on our independence. Falsity is heaped on falsity and one deception after another is foisted on us by those who seek to regulate events for their own benefit, while controlling every aspect of our lives by immersing us in irredeemable debt. Where is there any real humanity in all of this? Is this what we truly believe life is all about and is this how we would have it continue?

We are not alone in our travails, however, for this state of human strife, discord and spiritual instability is also mirrored in an increasingly diseased and sickening Nature who, in her present high state of fever shivers between record heat and record cold. Mother-Earth is now seeking, with all the forces at her command, to re-establish her own equilibrium and health, thrashing about with increasingly violent storms, sweating in catastrophic floods, parching with devastating droughts, writhing in all-consuming conflagrations and shivering in rending earthquakes. Beset from all sides by these awesome and terrifying events, we have the

effrontery to call them 'natural disasters', blaming Nature for what we ourselves are responsible. For in the light of all that has been written previously, there can be little doubt that we are the true instigators of these cataclysmic episodes. These are not 'Acts of God', but misdeeds directly attributable to the senseless activities of humankind.

We therefore urgently need to propose a new set of higher ideals and work towards their realisation. Of necessity they must be at variance with those to which we presently subscribe and may cause much discomfort to those people who would resist or cannot accept change.

Before we set about proposing these new standards of behaviour and conduct, certain factors should perhaps be entertained, which may perhaps throw light on the origins of the present status quo. In Viktor's view, the physical conditions of the human world and Nature are the direct, legitimate and inevitable outcome of humanity's spiritual concepts and ideological convictions. They comprise the vis generatrix, as it were, which today has resulted in the over-predominance of centrifugence, explosion and over-heating, phenomena that are about to destroy our civilisation. Historically such a disaster overtook humanity before in the cataclysmic destruction of Atlantis, which Viktor held to be the result of the artificial over-stimulation of the levitative forces of implosion. Applying Viktor's logic to the analogous and now looming situation confronting humankind, it could be inferred that Atlantean society and technology were founded on concepts antithetical to those to which we presently adhere. From fig. 4.6 (p.63) we remember that levitation and implosion are associated with centripetence, carbonates and the cooperative nurturing aspect of the female. By extension, Atlantean society may well have been matriarchal in which women would have held the principal positions of authority - queens, high-priestesses and oracles being much in evidence in recorded history. Under such a societal organisation in which feminine aspected energies and aspirations were supreme, it is conceivable that men were in a

subordinate state, and very much in the same suppressed condition that women generally are today. With Atlantis destroyed, in the ensuing chaos the subjugated males seized the opportunity to reverse their intolerable situation, taking initiative and power back from women.

With the increasing suppression of women in historical times, the centrifugal nature of maleness and the divisiveness associated with it gradually became more and more out of balance. Mother-Earth was raped and shorn of all her treasures. Wars broke out as squabbles over land and wealth multiplied. Rivalry between men and other men increased as nation rose against nation. With few restraints to stem this rising disintegrative surge, women were further debased as competitive ideology gained ground, which has not only led to acceptance of competition as one of the principle strategies governing life and behaviour, but also to the view that the workings of Mother-Nature are equally competitive. Here it is to be remembered that these doctrines, both in religion and science, were mainly laid down by men.

In the process, we have again arrived at a world condition analogous to that which may have destroyed Atlantis so many thousands of years ago. The difference here being that, this time, we are about to destroy the planet as a result of the vast over-dominance of our centrifugal technology and its bed-fellow, our competitive ideology. Of late the inevitable reaction has again become manifest as women fight for their rightful place as equals in a society composed almost evenly of men and women.

Unless enormous and sensitive care is taken, there is a great danger that everything will go overboard towards the opposite extreme and once again get wildly out of balance. Both womankind and mankind should therefore carefully, objectively and unemotionally review the present situation from a much higher perspective before taking any irreversible steps. As we have seen in the discussion of the male fertilising function of oxygen in its interaction with the fructigenic female carbonates, when oxygen, which is associated with and becomes highly active



through centrifugence, gets the upper hand, it becomes aggressive and destroys. On the other hand, with cooling it becomes passive and is bound by the female carbonates, through which all life and evolution harmoniously unfold.

Perhaps, therefore, in the light of this natural evolutionally productive and reproductive phenomenon, the role of men should not be to lead arrogantly on all occasions on the false assumption that this is a man's world which, as we have seen has brought such disaster upon us, but should be to lend their greater physical strength, generally more technical know-how and other complementary abilities, to a new society in which governance should be mainly, but not entirely, directed by women. Apart from their many other attributes, on this Mother-Earth women are the sustainers of the future, of which strife, discord and division are the greatest enemies.

For evolution to proceed harmoniously there has to be the right balance between antitheses; that is to say, the activity of all the various magnitudes in the right hand column of the table in fig. 4.6 (p.63) have to predominate slightly. However, it should be equally remembered that no single aspect can exist without its counterpart. There can be no existence for electricism without magnetism, no gravity without levity, no Mother-Earth without Father-Sun, no woman without man. Indeed, it may well be, too, that the ECI cannot exist unless we also exist as part of It. The ECI is the inseminator of the idea and we and all other life are the products of Its fecund manifestation.

A growing number of individuals, such as Prof. David Bohm (*Wholeness and the Implicate Order*<sup>1</sup>), the astronomer Sir Fred Hoyle (*The Intelligent Universe*<sup>2</sup>) and many others, have presented entirely new concepts of the cosmos, its functions and how it came into being, thereby contributing towards the growing impetus for the generation of a new paradigm. Organisations such as Greenpeace, Friends of the Earth and many more are on the increase, composed of thinking people who see the urgent need for change and who oppose, often with extraor-

dinary personal courage and self-sacrifice, the conservative, self-interested forces and oppressive powers that strive to maintain the status quo.

Change is most certainly in the wind, but there will be no immediate change for the better until fundamentally new programs based on long term targets are put in hand and a new natural economic philosophy is espoused, remembering always that lasting economic prosperity of any kind is founded exclusively on an abundance and maintenance of healthy greenery and wholesome water.

If we would rebuild the forest, we cannot expect to reap any rewards in good quality timber for 200 to 300 years, for it takes that long for many trees to mature and produce high-quality seeds. In earlier centuries, people were far more aware of the continuity of life and the necessity to make provision for posterity. They planted avenues of oaks, knowing full well that they would never see them in their full maturity. More than ever before, this responsible attitude towards the environment needs to be resuscitated.

Our role should, therefore, be that of guardians of the future, of helpers, restorers and nurturers of all life, all the more so at this late hour if we are not to inaugurate our own oblivion. Too many species, each with its special characteristics and activities as instruments in Nature's orchestral masterpiece, largely still a mystery to us, have been sacrificed as our innate spirituality and sensitivity have been debased in the pursuit of economic and material well-being. In order to acquit ourselves properly in the future and to restore to ourselves the former dignity, worthy of administrators of the ECI's creative plan, we may once have possessed, it is high time that we took serious stock of what we have done and why we have done it, for which an all-encompassing integrated overview is absolutely essential.

Encompassing as it does a brief interpretation and synthesis of Viktor Schauberg's theories, if nothing more, this book may have given us a small glimpse of the obverse side

of what we presently perceive as reality. It is becoming more and more clearly evident that we need to change our ways and practices drastically if we are to survive as a race. If it is to remain at the cutting edge of human endeavour, science too, as a leading influence on human thought and activity, will have to raise its sights and thinking one octave higher. In the process it will, perhaps, begin to appreciate its lack of omniscience and approach matters with a far greater humility than it has to date.

From all our analytical studies, it must have become increasingly apparent that knowledge is unlimited and, therefore, however much we may think we have learnt, it is still relatively insignificant when measured against the infinite, or the knowledge and wisdom immanent in realms and dimensions beyond our ken. As a vital first step, the development of a new technology, an eco-technology, harmonious and conforming to Nature's laws, is imperative and will demand a radical and fundamental change in our way of thinking and our approach to the interpretation of the established doctrines and facts of physics, chemistry, agriculture, forestry and water management. As a pointer as to how such a new technology should come

about, let me quote Viktor Schauberger once more:

'How else should it be done then?', was always the immediate question. The answer is simple: Exactly in the opposite way that it is done today!<sup>3</sup>

What is needed, therefore, is a volte face, a complete about-turn. We need to turn our minds and bodies through 180° and once more face the central light of truth. Then all shadows vanish instantaneously, all obscurity disappears and in the bright illumination, we shall be able to perceive with great clarity all the various threads of life, the widespread spokes of the cosmic wagon-wheel, returning and interconnecting with one another in the gleaming hub from which they all spring.

Suddenly all is simple, all complicated theories which have attempted to explain the inscrutable blackness fall away, banished into the gloom from whence they came. All at once there is light and, if we raise our eyes, we may even become aware of the sublime source from which all life, movement and being on this lonesome, but beautiful planet have sprung - that eternal, ethereal brilliance, radiant within the outer light.

## Notes

1. Wholeness and the Implicate Order, by David Bohm: Ark Publishers.
2. The Intelligent Universe, by Sir Fred Hoyle: Michael Joseph, London, 1983.
3. Our Senseless Toil, Pt.I, p.10.

## Disclaimer

While the author sincerely believes in, and has no reason to doubt, the veracity and efficacy of the hydraulic or implosion theories, processes and apparatuses described in this book, he has not personally carried out any practical investigation, nor constructed any of the relevant devices and therefore cannot accept responsibility for any unsatisfactory experimentation.

# GLOSSARY

**Abrasion:** A process in which one material is caused to rub against another. Where one material is harder than the other, the softer will be reduced in size or smoothed by the removal of minute fragments. (See concision)

**Bioelectricism:** A higher, more ethereal form of electricity involved in electrical interactions in living systems and tissues. It is responsible for the healthy decomposition (not putrefaction) of formerly living matter and the subsequent transmutation of this into development-ripe raw material in consort with its counterpart - biomagnetism.

**Biomagnetism:** A higher, more ethereal form of magnetism and the counterpart of bioelectricism. It is the form of magnetism responsible for uplift (both physical and spiritual), levitation and the generation of life-enhancing energies.

**Biometal:** An alloy of two or more different metals with opposite charges and valencies, such as silver, which has a positive charge, and copper with a negative charge. According to Viktor Schauburger the former possesses male attributes and the latter, female.

**Caisson:** A floating metal canister, generally cylindrical in form. The one described in this book is closed at the top and open at the bottom, and is used to open and close the sluices of the reservoir. Open at both ends, it is more commonly used in bridge-building, to exclude water from the areas of the foundations, enabling their construction.

**Cambium Layer:** Generally the outer annular tissues of a tree trunk immediately underneath the bark. These are of varying thickness according to species. It is where the major growth processes take place as a result of the flow and interaction between the fluids contained in the xylem and phloem. Each year at its internal

interface with the heartwood, the annual ring proper is formed.

**Carbones:** Principally those basic elements and raw materials of carbonous nature, although the term also includes all the elements of the chemist and physicist with the exclusion of oxygen and hydrogen. They are what Viktor Schauburger called "Mother-Substances", as they form the matrix from which all life is created.

**Centrifugence:** The function of so-called centrifugal force, which acts from the inside outwards. This is conventionally thought to eject any material exposed to it radially from the centre outwards, whereas in actual fact the material is expelled tangentially.

**Centripetence:** The function of centripetal force. This is a force that acts from the outside inwards. Its most frequently observed manifestation takes the form of vortices.

**Centripulser:** A device having a number of whorl-pipes attached to a central hollow hub, whereby the medium (water or air) is moved in such a way that the forces of centrifugence and centripetence operate on a common axis. As the water is centrifuged from the centre of the hub outwards through the whorl-pipes, it is also caused to inwind centripetally due to the spiral configuration of the latter.

**Corrasion:** A process of mutual abrasion.  
**Cycloid-Spiral-Space-Curve Motion:** This can be a simple helical or spiral motion about the longitudinal axis, which on occasion pulsatingly expands from and contracts towards this axis. It can also embody a double spiral movement, in which the moving medium spirals about itself, while simultaneously following a spiral path. It is a form of motion analogous to the rotation of the Earth about the Sun, where the Earth gyrates about its own axis while moving along its orbital

path. It is the form of motion Viktor Schauburger referred to as the "original" or "form-originating" motion responsible for the evolutionary dynamics of the Earth and Cosmos.

Densation: The process of becoming physically denser or more condensed.

Dielectric Value: This refers to the capacity of a given substance to resist the transfer of an electric charge. The base value for a dielectric is that of a vacuum = 1. Water has one of the highest dielectric values, namely 81, which means that it is 81 times more resistant to the transfer of a charge than is a vacuum.

Dynagens: The entities or ethericities belonging to the 4th and 5th dimensions which enhance the creation of dynamic energy on lower planes of existence.

Dynamic Energy: This is energy that has more to do with the energising of all life-processes, subtle and otherwise, than purely physical phenomena for which the term kinetic energy, i.e. energy in motion, is normally used. (See potential energy)

Ecliptic: The circular path of the Sun across the heavens as viewed from the Earth and the angle it subtends relative to the plane of the equator. This varies according to season or the position of the Earth on its orbit around the Sun, reaching a maximum of about 23.4° north of the Equator on the 21 June (northern summer solstice) and 23.4° south of the Equator on the 21 December (northern winter solstice).

Electricism: The term Viktor Schauburger coined to describe the general characteristics and functions of the energies operating within the domain of what is commonly called electricity.

Emanation: Any form of gaseous, vaporous, ethereal, spiritual, or electromagnetic emission of radiation, rays or energies.

Etherialisation: The process of raising or exalting energies or matter to higher, more subtle states of being.

Ethericities: This refers to those supra-normal, energetic, bio-electric, bio-magnetic, catalytic, high-frequency, vibratory, super-potent energies of quasi-material, quasi-etheric nature belonging to the 4th and 5th dimensions of being.

Exosphere: The highest defined stratum of the atmosphere containing rarefied helium and hydrogen gases, which eventually merges with interstellar space. Its lower limit lies about 645km above the surface of the Earth.

Ferro-magnetism: The most commonly understood form of magnetism as in horseshoe and

other forms of permanent magnets, in which the magnetic dipole moments of the atoms of such elements as iron and cobalt become aligned and operate in unison, creating a strong magnetic field.

Fibonacci Series: The name given to a mathematical progression of whole numbers discovered by the Italian mathematician Leonardo of Pisa, otherwise known as Fibonacci (an abbreviation of filius Bonacci or son of Bonacci) and published in his book *Liber Abacci* in 1202. This series begins with the numbers 1 (first term) and 2 (second term), which are then added to produce a third term - 3. The second term (in this case the 2) then becomes the first and is added to the former third term (now the second) to produce a further third term. The series results in the number sequence 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, etc. and through the division of each subsequent first term by the second produces an increasingly accurate value for the so-called Golden Section and its reciprocal.

Foramen: A naturally-occurring orifice, aperture or short passage in living tissues, such as leaves, bones, etc.

Fructigens: The ethericities (subtle energies) responsible for increasing the fecundity or capacity for fructification and fertilisation of and by living things.

Golden Section: One of the so-called 'Divine Proportions' and is derived from the Fibonacci Series. Also known as Phi, its components are related in the proportion of 1:1.618033988, or the reciprocal ratio of:0.618033988. This is the only number wherein the decimal portions of the reciprocals and the square of the number itself have the same value, i.e.  $(1.618033988)^2 = 2.618033988$  and  $1/1.618033988 = 0.618033988$ .

Half-Hydrological Cycle: A truncated version of the full hydrological cycle in which no rain-water infiltrates the ground, but either drains away over the ground surface or re-evaporates into the atmosphere with unnatural rapidity, leading to excessive agglomerations and the uneven distribution of water vapour.

Harmonically-Structured Energy: The type of energy responsible for and comprised in the formation and structure of physical matter due to the harmonic and therefore mutually attractive resonances and forces that occur between the various atoms concerned.

Hydrological Cycle: The full, balanced and regulated natural cycle of water from deep

within the Earth to the upper regions of the atmosphere and back, in which rainwater is able to percolate into the ground and the amount of atmospheric water is more evenly distributed and maintained at a more or less constant level. (See half-hydrological cycle)

**Immature Water:** Groundwater that has not yet accumulated and absorbed minerals, salts and trace-elements, which it requires in order to become mature.

**Impeller:** A mechanism for moving water or other liquid mechanically.

**Centrifugal impeller:** the intake of water is along the axis of rotation in front of and perpendicular to the radially-ribbed impeller disc and is expelled tangentially under pressure at right-angles to the direction of inflow due to the action of centrifugal force. It has a disintegrative effect on water.

**Centripetal impeller:** The water is introduced tangentially and exits axially in a longitudinal vortex down the central axis of rotation, which creates suction, cools and coheres the structure of the water.

**Indifference:** Generally speaking, an unstable state of equilibrium where the organism or system in question is possessed of its highest potential, vitality, health and energy and is therefore able to operate at the optimal temperature and/or energy level appropriate to its proper function. Viktor Schauberg also defined this condition as "temperatureless". For human beings this state of indifference obtains at a temperature of +37° Celsius, and for water relates to its condition of least volume, highest density and energy content at a temperature of +4° Celsius, its so-called anomaly point.

**Inertia:** The tendency or capacity of a given object or system to resist movement, acceleration or any change of status.

**Juvenile Water:** Akin to immature water, the term juvenile generally refers to rainwater, which lacks minerals, salts and trace-elements.

**Kinetic Energy:** Energy in motion or doing work. (See potential energy and dynamic energy)

**Laminar Flow:** A condition in which the various strata of water within a given water-body flow without turbulence.

**Law of Anti-conservation of Energy:** The law postulated by Viktor Schauberg, where the amount of available energy, potential, dynamic or kinetic is not constant, which, by means of the appropriate device or dynamic process, can

be increased at will to virtually any order of magnitude. It is the rational counterpart of the Law of Conservation of Energy.

**Law of Ceaseless Cycles:** The primordial, immutable law of Nature that governs and is responsible for all cyclical phenomena such as the changing seasons, the alternation between night and day, the ebb and flood of tides, the diurnal fluctuations in the flow of sap in trees, the alternating pulsations between electric and magnetic fields, the movement of galaxies, and soon.

**Law of Communication:** The law relating to liquids, which states that if any two or more bodies of a given liquid, water for instance, communicate directly with one another via some form of opening, then the surfaces of the respective liquids are brought to a common, uniform level, provided always that they have the same specific density or weight.

**Law of Conservation of Energy:** The law stating that the amount of energy throughout the Universe is finite; that there can neither be more nor less energy, which therefore always remains constant and thus can never be lost. Energy merely changes from one form to another, such as the transfer from a potential state to a kinetic state and vice versa.

**Law of Gravity:** The law governing the attraction of bodies towards the centre of a heavenly body or the mutual attraction between two or more such bodies. (See Law of Levity)

**Law of Levity:** The law postulated by Viktor Schauberg that governs and is responsible for all upward movement of energy, uplift, upward growth, the upright stature of human beings, animals and other organisms, and is the counterpart to the Law of Gravity. As the force of gravity decreases the force of levity increases.

**Law of Thermodynamics, Second:** The law related to temperature derived from the Law of Conservation of Energy, stating inter alia that with no additional input of energy from some external source, the energy in all closed systems (the whole universe included) will eventually be transformed into heat and ultimately reduced to a condition of uniform temperature known as the 'Heat Death'.

**Laya Point:** From the Sanskrit, meaning the point where all differentiation, material or otherwise, has ceased. It is an immaterial focus or state of spiritual or energetic potential in a neutral condition and whatever emerges from it becomes active life.

**Lignification:** The process by which the cells in the cambium layer of trees become rigid and are transformed into wood proper through the accretion of lignin in the cell-walls.

**Loschmidt Number:** First calculated by Joseph Loschmidt (1821-1895), the Loschmidt Constant or Loschmidt Number ( $N_L$ ) determines the number of particles per unit volume of an ideal gas at standard temperature and pressure and has a value of  $2.68719 \times 10^{25}$  particles per cubic metre.

**Nascent Spring Water:** Immature water within the central stratum of the groundwater, having a temperature of about  $+4^\circ$  Celsius.

**Natural Capital:** The basic elements and raw materials, organic and otherwise, from which Nature creates all life and develops new species, the latter representing the interest accruing from the natural capital.

**Naturalesque:** Refers to artificially contrived processes or mechanical devices that conform to or emulate Nature's laws, or operate in a naturally correct way.

**Obliquity of the Earth's Axis:** The angle subtended between the Earth's axis of rotation and the ecliptic.

**Over-Unity:** A phenomenon contrary to the Conservation of Energy Law and to the Second Law of Thermodynamics, in which the amount of energy input is less than the energy output. An over-unity generator, therefore, is a device that produces more energy than it requires to operate. This is otherwise known as 'free energy'.

**Permittivity:** Measured in farads, this relates to the extent to which a given substance can resist or transfer an electric charge.

**Phloem:** The vascular tissues within the cambium layer of plants that conduct sugars, proteins, absorbed atmospheric gases and predominantly negatively ionised substances down the stem of trunk from the leaves.

**Potential Energy:** Stored energy or energy that as yet is unmanifested as dynamic or kinetic energy.

**Qualigens:** The ethericities responsible for the enhancement of quality and increase in quality matter.

**Ring-Shakes:** Circular cleavages between the annual rings of trees that run parallel to the grain.

**Seepage Spring:** A spring that is formed when percolating groundwater encounters an impervious stratum and drains away over the stratum surface under the influence of gravity towards the point of egress. The temperature of such springs generally conforms to the ambient ground temperature.

**Stomata:** Pores in the surface of leaves that control the emission and absorption of gases, water vapour, etc.

**Temperament:** In Viktor Schauberger's terminology, this refers to the behaviour, character, gender and intrinsic properties, sometimes temperature-induced, of various immaterial and other energies, such as electricism, biomagnetism, gravity and levity as well as the media of earth, air and water.

**Temperature Gradients:** In terms of Viktor Schauberger's concepts, temperature gradients are principally related to the direction of movement of temperature within and between the respective temperatures of the ground, water and atmosphere, which can either take a positive or negative form. A positive temperature gradient occurs when the direction of temperature movement is towards the anomaly point of water, i.e. towards  $+4^\circ$  Celsius. A negative temperature gradient occurs when the direction of temperature movement is either upwards or downwards from  $+4^\circ$  Celsius.

**Triboluminescence:** An internal glow or luminescence produced when two or more crystalline rocks of similar composition are rubbed hard together or struck against one another and is attributed to the energy given off by the electrons contained the rocks as they return from a pressure-induced, excited state to their rest orbits. As a phenomenon it can occur both in air and under water.

**Turbidity:** A measure of the opaqueness, cloudiness or muddiness of water due its content of suspended matter.

**Whorl-Pipes:** Pipes, principally made of copper or its alloys, having a spiral configuration akin to that of a Kudu antelope, through which the transported medium is caused to move centripetally and vortically in a double spiral motion.

**Xylem:** The vascular tissue within the cambium layer of plants that conducts water and dissolved minerals, salts, trace-elements and predominantly positively ionised substances from the roots towards the leaves.

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## ABOUT THE AUTHOR

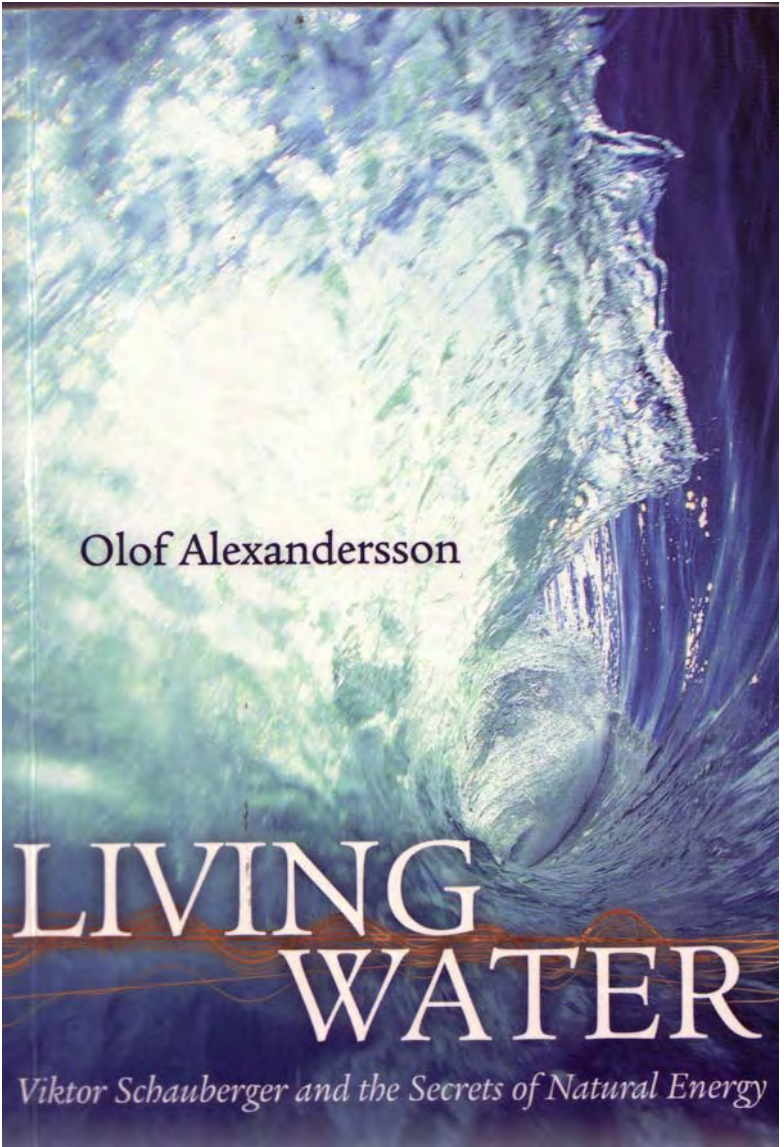
Callum Coats was born in London on 19th July 1939, but by the age of thirteen he had already seen a great deal of the world. His parents were internationally involved in the Theosophical Society which resulted in long periods in India and other non-European countries. He was at school at Gordonstoun in Scotland, renowned for its enlightened educational ideas, with a final year at its sister Salem School in Germany, and he speaks French and German fluently. In 1967 received a master's degree in architecture from the Architectural Association in London, practising first in London and then in Queensland, Australia where he now lives.

Callum first heard about the ideas of Viktor Schaubergger at the age of 17, but it was not until February 1977 that his mother introduced him to Viktor's physicist and mathematician son Walter Schaubergger. Astonished that no material on these ecologically important ideas was available in

English, he decided to abandon architecture and devote himself to their study.

Callum spent three years working full-time with Walter at his Pythagoras-Kepler System Institute in Lauffen, Austria, and studying Viktor's archives. He helped revise the translation of *Living Water*, the introductory work of Viktor Schaubergger by Olof Alexandersson (Pub. 1981). In the intervening fifteen years, Callum has devoted all his resources and time to writing *Living Energies* and to translating, collating and editing Viktor Schaubergger's books, articles and letters into the major archive of his work: the 4 vols. *Ecotechnology* series, subtitled *Viktor Schaubergger's own writings on Subtle Energies in Nature*.

Callum Coats has always had an abiding interest in Nature and natural phenomena. He is an accomplished speaker, and any enquiries about Schaubergger's ideas, and about lectures, should be addressed to him care of the publishers.



Olof Alexandersson

# LIVING WATER

*Viktor Schauberger and the Secrets of Natural Energy*

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## PUBLISHER'S NOTE

The first English language publication of this title in 1982 attracted much curiosity, but there were not, at that time, many projects in vortex research. Awareness of the world ecological crisis has stimulated much creative thought, so we considered it relevant to add some new material. The appendices therefore contribute information on new research projects and on the links of vortex theory to fundamental physics.

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# FOREWORD

Viktor Schaubерger's early appreciation of the intimate relationship between water and forest, and their dual influence upon water resource management, the landscape's health within particular precipitation areas - is undoubtedly correct. His perception of these complex and important questions of human existence was rooted in his experiences within the natural environment of temperate Austria. Here the natural processes of destruction are slow in reaction to human environmental mistakes. In the tropics, where the landscape is more vulnerable, the rapid consequences of human forest clearance are more obvious and extensive. This often leads to the collapse of the drainage system, serious erosion, the destruction of productive land, the disappearance of vegetation and fauna, aridity, and even negative repercussions far out to sea, because of the river's unnatural sedimentary outflow reducing the light intensity of coastal waters, thus killing coral reefs which had provided living and breeding grounds for commercially important fish species living in the open sea.

Schauberger's theories about Europe are, in the tropics, thus verified in a convincing and shocking way. We, in the temperate regions will, in the long run, experience similar damage to our renewable natural resources if harmful ecological measures are allowed to continue within the productive environment.

Man has a propensity to plan and execute the exploitation of natural resources with sights set on immediate or the earliest possible returns, without regard to the long-term perspectives or ecological relationships. Modern forestry illustrates this. To survive, we shall have to think and plan within an ecosystematic dimension, which demands that we

respect and protect the ecological and genetic processes that are the basis for our existence; in other words, the inter-relationship between water-soil-vegetation and animals. Nature's plan is that they should coexist in perfect harmony.

Kai Curry-Lindahl,  
Senior Advisor, United Nations Environment Programme



# INTRODUCTION

Many people suggested that I write a book on Viktor Schauburger, the extraordinary natural scientist, inventor and philosopher. Already in the 1920s he forewarned us, in speeches and articles, of the environmental crisis in which we are now caught and from which we seem to have little hope of escaping. In his lifetime he met mostly resistance and scorn, but now interest in his life and work is increasing in many parts of the world. People are impressed by this powerful character who had such a tragic destiny, and by the audacious theories with which he wanted to transform the world.

Viktor Schauburger was not a learned man in the conventional scientific sense. He had, however, seen right into the depths of the workings of Nature, and his theories are based on his own understanding of Nature's life and functions. He was, of course, an outsider, an individualist; but history teaches us that, even within natural science, such people have frequently produced epoch-making discoveries, while in their own lifetimes being considered ignorant laymen by the learned world. Seldom achieving recognition themselves, following generations have often had cause to bless their work. It is possible that Viktor Schauburger will one day be included in this category of scientist

Until now there has existed no English language literature on Viktor Schauburger, except for some articles in that important but little known magazine *The Men of the Trees*. This book is a modest attempt to present some material on his life and work that I have collected since 1956, when I first became aware of him. I did not meet him personally but a long friendship with his son, Walter Schauburger, and with several of Viktor Schauburger's old friends and colleagues have made

me feel close to him and his work.

This is not a biography, and even less a detailed exposition of his theories. In the main I have allowed Schauberger himself and his close associates to do the explaining, and have tried to restrict my own commentary as much as possible.

I am aware that the information for the basis of this book is fragile. Part of what he himself wrote was lost during his fateful trip to the United States, the trip that undoubtedly led indirectly to his death. For practical reasons I have not been able to use further special sources; so it is possible that there are omissions and possibly some mistakes in the text. On the whole, however, the story is true.

I have thought it unnecessary to quote all my sources in the text. For those interested, the main sources are listed at the end. I hope the reader will not be exasperated by complex wording that appears, sometimes without explanation, in the quotations. Viktor Schauberger's language is sometimes difficult to understand and to translate. He was often forced to use prevailing technical terms which he redefined in order to explain his theories, as the old definitions did not express what he wanted to say. Occasionally, he created new concepts which can be very difficult to understand. He was aware of the problems this could lead to, but he saw no alternative. The words of one of his colleagues, Professor Wilhelm Baiters comes to mind: 'How can it be easy to understand Father Schauberger's language - his work belongs to the future'.

This is not the place to discuss the validity of his theories. Up until now, only a small number of them have been able to be tested. He may have been wrong in some, and misunderstood other things he observed in Nature; but nevertheless, what remains clear is that, if his central theme is correct, then this embodies a revolutionary discovery of crucial importance. Viktor Schauberger's central theme was: 'Prevailing technology uses the wrong forms of motion. Our machines and processes channel such agents as air, water and other liquids and gases into the type of motion which Nature only uses to decompose and dissolve matter. Nature uses another form of motion for rebuilding. When our technology only uses the decomposing motion, it becomes a dead technology, a destructive one, dangerously affecting all of Nature.'

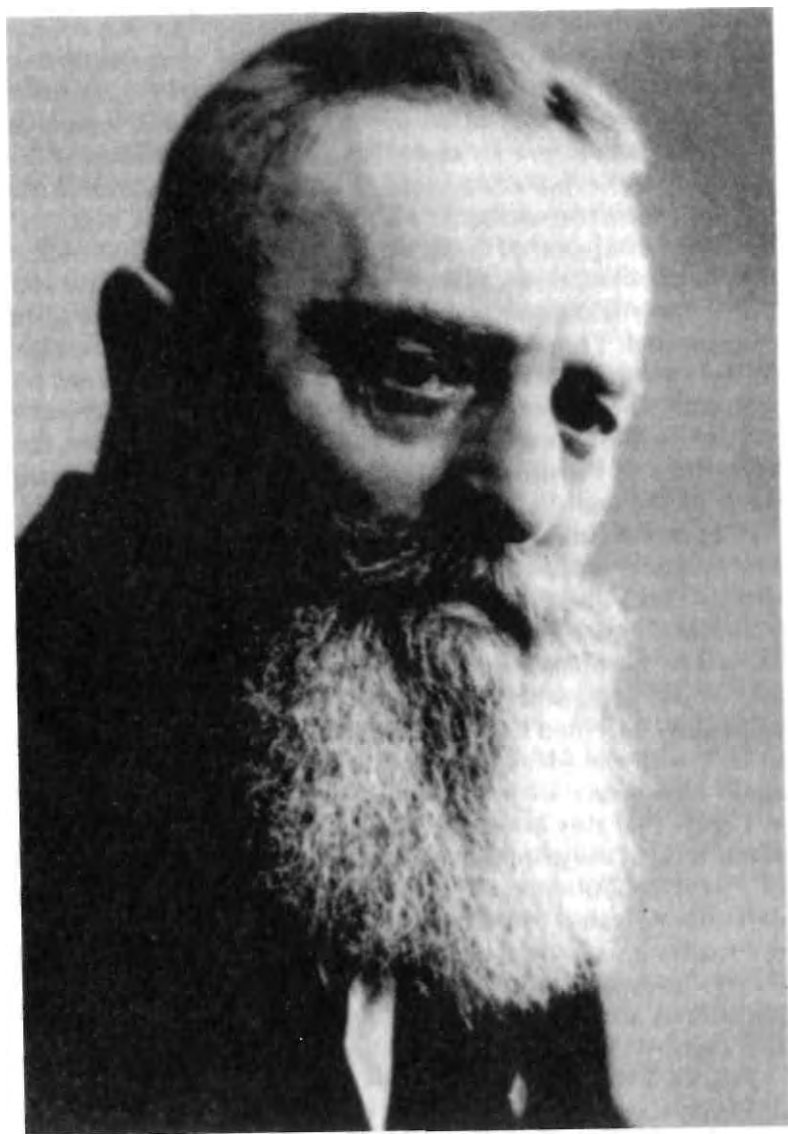
Instead, Viktor Schauberger wished to make practical use of nature's reconstituting principle of 'cycloid spiral motion'. In

this he succeeded in some way, though not in others. His description of what he experienced in Nature can sometimes sound like pure fantasy. However, it should be remembered that much of what Viktor Schauberger studied for so many years cannot now be seen, for the natural environment in which he lived is now no more. Nothing alters the fact that the phenomena he describes could have naturally occurred in the unspoiled surroundings of his younger days, and that they have now disappeared through the environmental destruction that has broken down Nature's interconnectedness. His attitudes towards economic development in the world may seem exaggerated. Those around him in the 1920s and 1930s often found cause to be amused by his prophecies of doom; for example, that a bottle of water would soon become more expensive than a bottle of wine. Now, fifty years later, both this and other of his prophecies have become a reality in many parts of the world.

Viktor Schauberger can be criticized in many ways; but however his theories are regarded, it would be difficult to deny that he was a great friend of Nature and a man with original, grandiose and often revolutionary ideas. Many have been moved by his ideas about Nature and his philosophies of life, and would agree with Wilhelm Baiters: 'You may have lived a calm and contented life- but from the moment you come face to face with the ideas of Viktor Schauberger, you will never again have peace in your soul'.

I trust that this book, despite its incompleteness, imparts something of the gripping and inspiring personality and ideas of Viktor Schauberger. This meeting with such a passionate defender of water, forest and fertile soil may, it is hoped, give the reader a nagging anxiety born from a feeling of responsibility- a responsibility stemming from the awareness that the plundered and raped Mother Earth shall recover her health and dignity, the basis also for man's own health and dignity.

Finally, I wish to thank warmly all those who have in their different ways greatly helped in the writing of this book.



Victor Schauberger.

# 1

## WHO WAS VIKTOR SCHAUBERGER?

They call me deranged. The hope is that they are right. It is of no greater or lesser import for another fool to wander the earth. But if I am right and science is wrong- then may the Lord God have mercy on mankind.

Viktor Schauburger

### A Meeting

A scene in the German Reich Chancellery in Berlin one day in 1934. Hitler, reclining in his chair, fixes his unerring gaze on the man sitting opposite him across the massive desk. There is another person in the room - ministerial director Wiluhn, a powerful man, but now just a bystander. The one who dominates the scene is not even Hitler himself, but the man opposite him. This is a tall, powerful man of fifty years old, with a lightly grey flecked beard, hooked nose and steady eyes - a man known in wide circles in Austria and neighbouring countries, and a man about whom there have been many controversies; a man with many enemies, but also many admirers. It is the legendary 'water magician' from Linz on the Danube - Viktor Schauburger.

Hider has requested his presence. He now directed a question to him: 'You are involved with a lot of things that interest me. But now you have come up with the curious idea of defining our technology as the greatest ever deceiver of mankind?'

Schauburger: 'Herr Reich Chancellor, do you really want to hear the truth?'

Hitler (surprised): 'Yes, of course, say what you wish.'

Schauberger: 'Herr Reich Chancellor, present-day science is following a wrong and dangerous path. First and foremost it concerns the treatment of water - the principal agent of life. The existing methods of water control, power stations and forestry are ruining water - the earth's blood. It becomes diseased, and so affects all its surroundings. Instead of progress, the future promises catastrophe. With your four-year plan, and the technological methods employed, you are demolishing Germany, instead of building her up. In this way, Germany will sink within ten years ...' But let us not anticipate.

### A Son of Water and Forests

Viktor Schauburger came from ancient Bavarian aristocracy who had lost their privileges and family residence, Schauburg, around 1230, after a feud with the powerful prelate, the Bishop of Passau. Around 1650, one Stephan Schauburger moved to Austria and settled down by Lake Plockenstein at the foot of the Dreisesselberg. He started a branch of the family whose members almost exclusively interested themselves in the husbandry of the forests and their wild life. In time their motto became 'Fidus in silvis silentibus' (Faithful to the quiet forests), and the family crest displayed a tree trunk garlanded with wild roses.

One of Stephan's descendants became the last leader of the hunt at Bad Ischl during the time of Franz Joseph. At the end of the nineteenth century, one of his brothers was master woodsman in Holzschlag, beside Lake Plockenstein. He had nine children, the fifth child being Viktor, born on 30 June, 1885.

Viktor was a true 'son of the forest', both from his heritage and his environment. There was never any doubt that he would follow in his father's footsteps. He wrote once, 'From my earliest childhood it was my greatest ambition to become a forest warden like my father, grandfather, great-grandfather and his father before him'.

Early on the boy showed great interest in everything to do with Nature. He could roam around the whole day alone in almost virgin forest (compared to today) around Lake Plockenstein, studying animal and plant life, or following the numerous wild mountain streams. He soon learned a lot not to be found

in books about the life of the forest and about water from his father and elder relations. He says of them: 'They relied upon what they saw with their own eyes and what they felt intuitively. Above all, they recognized the inner healing power of water, and understood that water, directed through irrigation canals at night can yield a significantly greater harvest than that of the neighbouring meadows and fields.<sup>34</sup> Their chief interest, however, lay in the care of the forest and the wild regions.'

His mother was also close to Nature, and he related how she often told him: 'If occasionally life is really hard, and you don't know where to turn, go to a stream and listen to its music. Then everything will be alright again.'

Viktor's father wanted his son to be academically trained as an arboriculturist, but this path had little interest for him. He soon broke off his studies, and began instead at the practical forest school, from which he duly graduated with the state forest warden's exam.

### The First Discoveries

His apprenticeship began under an older forest warden, and he has lyrically described how happy he felt as his dream was beginning to be realized. After the end of the First World War, he was given his own district, and, though remote, it had many advantages. He was employed by Prince Adolf Schaumburg-Lippe, who gave him responsibility over 21,000 hectares of almost untouched forest in Bernerau in Steyerling.

And so Schauberger's real period of learning started. In this large wilderness area, almost untouched by human hand because of its remoteness, he was provided with the opportunity of studying how Nature works when left undisturbed. There were many fine species of trees in this area that have since disappeared, a wealth of wildlife, and in the many fine streams a profusion of salmon, trout and other fish.

What Schauberger was able to study in this wilderness was often in sharp contrast to what was taught in academic forestry studies and it complemented the more traditional knowledge that he had absorbed at home.

Water was his consuming interest. He set out to discover its laws and characteristics and the connection between its temperature and its motion. He noticed how water running

from a mountain spring was at its greatest density, the so-called 'anomaly point' of  $+4^{\circ}\text{C}$ , and apparently at its highest quality. Salmon and trout, during spawning, drive themselves towards these sources, and he found the richest and most beautiful vegetation in these spots. During this early period as a forest warden, he experienced something that was to influence his understanding of water for the rest of his life. In the company of some old hunters, he had visited a remote district up in the mountains. Here there was a spring that had earlier been covered by a stone hut. This had subsequently been pulled down to expose the spring to light and sun. After a while, the spring had dried up, which surprised those who knew of it, as it had never done so before. Explanations for this were considered, and someone suggested rebuilding the stone structure. This was done, and after a while the spring returned.

It was now quite clear to Schauburger that water responded to forest and shade, and later he was supplied with much more evidence to confirm his theory. He began to perceive water as 'the earth's blood', and guessed that it must be allowed to flow along natural courses, if it was not to be spoiled. An untouched water course is shaped by winding curves and shaded banks covered with trees and bushes, not by accident. The water wants to flow in this way, and builds up these shaded banks to protect itself from direct sunlight'.

He meant that low temperature and natural flow was the condition necessary for water to preserve its supportive and carrying strength. He had seen how water could carry the greatest load on cold, clear nights, and he made early practical use of this observation. As a result of the war, the town of Linz suffered a serious shortage of fuel. This was during the winter of 1918. Up on the neighbouring Priel-Gebirge hills a lot of timber lay felled by fierce storms, but there were no draught animals- the war had taken those - and no large watercourses on which to float down the logs. Though Schauburger was merely a junior forest warden he felt confident enough to suggest to the town's magistrate that he be allowed to try to solve the fuel problem. The magistrate agreed.

In the district there flowed a stream thought unsuitable by the forestry experts for floating logs, but which Schauburger now decided to use. It was small and ran through narrow gorges, as he describes:



From my observations I noted how an increased water level resulting from a thaw builds up mud banks, which are then partially dispersed during clear cool nights when the water temperature drops. I then waited for an increase in the strength of the water current. This takes place in the early hours of the morning, when it is coolest, and particularly during full moon, in spite of the fact that the actual volume of the water is then apparently less, because of its contraction through cooling. I arranged for the timber to enter the water at the right moment, and in one single night 1600 cubic metres of timber were all brought down to a temporarily constructed pond in the valley.

He also became very interested in the behaviour of trout and salmon in the mountain streams. The large mountain trout could lie motionless for any amount of time in the strongest current. They made the odd movement with fin and tail, but otherwise appeared anchored in the rushing flow. If alarmed, on the other hand, they darted at lightning speed against the current instead of allowing themselves to be carried downstream by it, which would seem to be more natural.

Schauberger could find no explanation for the trout's behaviour in existing literature. However, he knew a mountain stream was colder near its source and became warmer farther from the source. Could this have some connection with the trout's struggle to escape against the current? He undertook several experiments to investigate this. As his observation point he chose a stretch of strong rapids along a stream where a large trout liked to lie. He then organised his woodsmen to warm up about one hundred litres of water and pour this in 500 metres upstream at a given signal. The stream was large, with a flow volume of several cubic metres of water per second. The meagre 100 litres of heated water did not noticeably warm up the stream. However, soon after the warm water was added, the trout - which until then had remained motionless - became greatly agitated. It flexed its tail, and was only with considerable effort able to maintain its position with vigorous movement of its fins. Soon its efforts were to no avail, and it was swept downstream, out of sight only much later to return to its old position. This convinced Schauburger that his theory was correct that there was indeed a connection between the

water's temperature and the trout's behaviour.

Schauberger also studied the trout's ability to jump up high waterfalls with little apparent effort. Within this phenomenon he saw evidence for his theory that the trout exploited some hitherto unknown source of energy within the water. He can himself describe such an observation:

It was spawning time one early spring moonlight night I was sitting beside a waterfall waiting to catch a dangerous fish poacher. What then occurred took place so quickly that I was hardly able to comprehend. In the moonlight falling directly onto the crystal clear water, every movement of the fish, garnered in large numbers, could be observed. Suddenly the trout dispersed, due to the appearance of a particularly large fish which swam up from below to confront the waterfall. It seemed as if it wished to disturb me other trout and danced in great twisting movements in the undulating water, as it swam quickly to and fro. Then, as suddenly, the large trout disappeared in the jet of the waterfall which glistened like falling metal. I saw it fleetingly under a conically-shaped stream of water, dancing in a wild spinning movement the reason for which was at first not clear to me. It then came out of this spinning movement and floated motionlessly upwards. On reaching the lower curve of the waterfall, it tumbled over and with a strong push reached behind the upper curve of the waterfall. There, in the fast-flowing water, with a vigorous tail movement it disappeared. Deep in thought I filled my pipe, and as I wended my way homewards, smoked it to the end. I often subsequently saw the same sequence of play of a trout jumping a high waterfall. After decades of similar observations, like rows of pearls on a chain, I should be able to come to some conclusion. But no scientist has been able to explain this phenomenon to me.

Schauberger, in another connection, suggests that a natural watercourse allowing natural motion, builds up an energy that flows in the opposite direction to the water. It is this energy that is used by the trout. In a suitably formed waterfall this energy flow can be distinguished as a channel of light within the streaming water. The trout seeks out this energy flow, and is sucked upwards as if in a whirlwind.

It was not only the trout, however, that he saw move in such an unusual way in these undisturbed waters. On a clear late winter night, in brilliant moonlight, he stood by a mountain pool formed within a rushing stream. The water in the pool was several metres deep, but so clear that he could easily see the bottom. Here lay stones, some as large as a man's head. As he stood studying these, he was surprised to see that a few of the stones were moving here and there, colliding with each other as if pulled together, only to be forced apart as if electrically charged. He explains:

I did not trust my generally observant eyes any more, when suddenly an almost head-size stone began to move in a circular path in the same way as a trout before leaping over a waterfall. The stone was egg-shaped.

In the next instance the stone was on the surface of the water, around which a circle of ice quickly formed. It appeared to float on the water surface, lit by the full moon.

Then a second, a third, followed by other stones in sequence went through the same movements. Eventually nearly all the stones of the same egg shape were on the surface. Other stones of irregular or angular shape remained below and did not move. At the time I naturally had no idea that it was a case of a synchronicity of events, leading to a unique form of movement. This movement overcomes the force of gravity and allows the stones of regular shape to come to the surface of the water.'

Schauberger says later that all the 'dancing stones' contained metals. It was such observations as these in his wilderness that caused him to ponder over the meaning of 'motion'.

He asked himself: 'What, in fact, is 'motion'?' Are there perhaps different types of motion? Might there possibly exist a form of motion as yet unknown to science? Out of his ponderings and observations there slowly grew a theory of the different forms of motion. He dearly wanted to put forward this theory, to discuss it with technical experts and scientists, but how was he to show that he had discovered something new?

## Log Flumes That Were Technological Mysteries

Prince Adolf von Schaumburg-Lippe had problems. War and inflation, post-war crises and, not least, a young and financially demanding wife, forced the ageing prince to investigate all possibilities of propping up his ever diminishing treasury. He had fully worked his other forest domains, and now there remained Schauburger's own district, where the Prince often wandered, complaining of his bad luck. For here lay large stands of mature timber, so ill-placed for transportation, that the costs of moving it would eat up all the profits.

Eventually Prince Adolf announced a competition for the best solution to this problem, which would release his frozen assets in the Bernerau region.

Suggestions flowed in from forest engineers, hydrologists and other experts, but none of them caught the Prince's eye. There was one suggestion that he never even saw - the competition committee sifted it out at the preliminary stage. A junior forest warden had had the cheek to compete with experts and, even worse, had presented an idea which was complete fantasy - a bad joke. They had returned it to him with a stiff reprimand for not taking the competition seriously - and that presumably closed the issue.

But fate had decided otherwise. After an unsuccessful competition Prince Adolf was still seeking large sums of money, particularly in view of the young princess's approaching annual visit to Monte Carlo. The Princess herself came to Schauburger's district to hunt deer, accompanied by a young forest warden. During the hunt she confided in Schauburger that the Prince must soon leave his estate as he was bankrupt. The conversation turned to Schauburger's entry to the competition, which had so angered the committee. He presented the plan to the Princess, who asked him how much could be saved in transport costs. Schauburger answered that if the costs up until now had been 12 schillings per cubic metre transported to the sawmill, the costs with this method would lower this to one schilling plus installation costs for construction.

The Princess succeeded in persuading her husband to try out Schauburger's idea, but the construction had to be built with the latter's own funds, on the understanding that if these lived up to expectation, the Prince would reimburse him. After considerable trouble Schauburger managed to find a

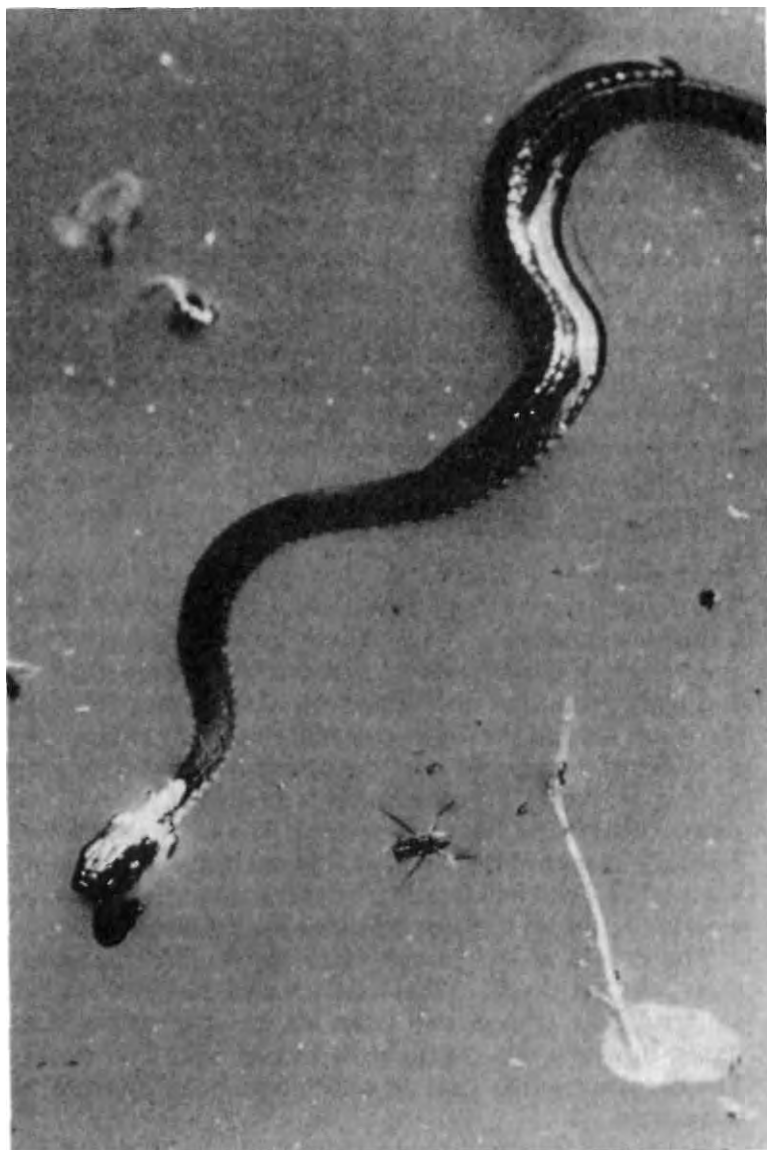
businessman to back him and the building commenced.

Schauberger's ideas had already been thrown out at the planning stage by all the experts on timber flotation, and criticism increased as the building proceeded. No one had ever seen such a construction. Schauburger built a wooden chute, fifty kilometres long, which in itself might have been acceptable, but this particular chute had an idiotic shape; it was not straight, but zigzagged alongside valley sides and ravines, instead of following the shortest route. Finally, and most crazy of all, this apparently dumb-witted forester meant to let out water from the chute here and there, and then replenish with fresh water from streams and water courses along the route. He must fill up with cold water, he said, otherwise the larger logs would not float in the chute. Cold water! Who had ever heard such nonsense! Water is water- but he would presumably discover this. Anyone could predict the result. Nothing could float in such a chute. But these malicious prophecies were unfulfilled, as Schauburger describes.

After about four months the construction was complete. The massive timbers lay ready in place. One day I conducted a simple experiment A log of average weight was fed into the trough. It floated down for about 100 metres and then suddenly grounded on the bottom of the trough, causing the water behind the log to rise and eventually to flow over the sides of the trough. I saw the scornful looks on the faces of the workers. I immediately recognized that I had miscalculated and felt disconcerted. The log was removed from the trough. My diagnosis was too little water and too sharp a fall. I was helpless. My first act was to send my fellow workers home so I might consider the problem quietly.

The curves of the trough were correct On that score there was no doubt What was wrong? Slowly I walked alongside the trough and came to the trap and sorting dams, to which was connected a further length of trough. The dams were full. I sat on a rock above the water in the warm sun.

Suddenly I felt something moving underneath my leather trousers. In springing up I saw a snake in a coiled position. I slung the snake away and it fell into the dam where it swam quickly to the far side and tried to get onto dry land. It was unsuccessful because the bank was too steep. It then swam



Swimming Grass Snake. The shape of its body, the movement and the wave-form all merge into one.

'Photograph W. Rohdich'

hither and thither seeking an easier way to land. I observed its movements and wondered how the snake could swim as swift as an arrow without fins. Looking through my binoculars I noted the peculiar twisting movement of its body under the crystal clear water. At last the snake managed to reach the opposite bank. For some time I stood still and in my mind replayed the movements of the snake — a combination of vertical and horizontal curves. In a flash I clearly understood the process.

The snake's movement through the water had given Schauberger the solution to the problem with the chute. He sent his workers to the sawmill to fetch some lengths of timber. The sound of hammers could be heard throughout the night as the lengths were nailed down within the curves of the chute to agitate the water into a snake-like motion. There was little time, as the opening ceremony was scheduled for the following day. Schauberger popped into his lodgings after midnight where he found a letter from the head forester telling him that at 10.00 am. the next morning the Prince and Princess, the chief for timber transportation, and other dignitaries were to attend the practical demonstration. Although work on the alterations continued throughout the night, he was unable to finish in time for a test run. It was left to hope that everything would function properly. Schauberger continues the story:

I went to the location of the dam inflow and waited until my people came, who were then followed by the Prince and Princess and also my bitterest opponents, experts and technicians. I greeted the royal couple and the head forester but did not so much as give a glance to the others. The Princess looked at me with an anxious expression, while the 'forstmeister' responsible for the floating logs stood leaning on a post, smiling in a superior way.

I opened the dam lock, behind which my workers began collecting the smaller sized logs in the water. Somehow a heavier log about 90cm thick entered with the rest unnoticed. 'No, no', shouted the old log master, 'We cannot have that heavy log amongst the others.' I gave a quick wave, while the unwanted log slowly floated almost out of the water towards the outflow. It soon caused a blockage resulting in a rise in the water level. No one spoke a word. All stared at the log

riding high in the water. In the next moment the water in the trough must overflow.

Then suddenly a gurgling noise was heard. The heavy log swung somewhat towards the right, then to the left, twisting like a snake, the head high out of the water as it floated away as quick as an arrow. After a few seconds the log negotiated the first elegant curve and was gone.

Success was complete. In his appreciation the Prince made Schauburger the head warden for the whole of his extensive forest and hunting territories.<sup>35</sup> Experts came from all over Europe to study the construction. The word spread like a forest fire throughout the forestry world about this extraordinary woodsman, and soon spread also to the government in Vienna

#### Schauburger Becomes the State's Consultant for Timber Flotation<sup>36</sup>

Soon there came a request from Federal Minister Buchinger to fill the position of State Consultant for Timber Flotation Installations. Schauburger accepted the offer and was given a contract with a salary which was double that of an academic working within the same field. Furthermore, payment was to be made in gold which was of special value in those inflationary times.

As a consultant, Schauburger travelled all over Austria for several years. He formed a close understanding with his nearest superior, minister Thaler, who had been a farmer in the Tyrol, but his relations with the forestry experts were more strained. The academics were particularly annoyed that this 'upstart' should have both the power to give directives on technical questions, which he could not possibly know much about, given his low level of education, and also command a salary to which he had no right as a non-academic. Bitterness naturally increased as their attempts to copy Schauburger's installations proved unsuccessful. They had tried without Schauburger's help to build a construction at Reichsraming similar to the one at Steyerling, but though it was copied in detail, the logs nevertheless remained lying on the bottom of the chute. Pride had to be swallowed and Schauburger was called in to partially rebuild it, after which it worked perfectly.



Under his supervision other constructions were built in Taschlschlucht and Murztal, amongst other places.

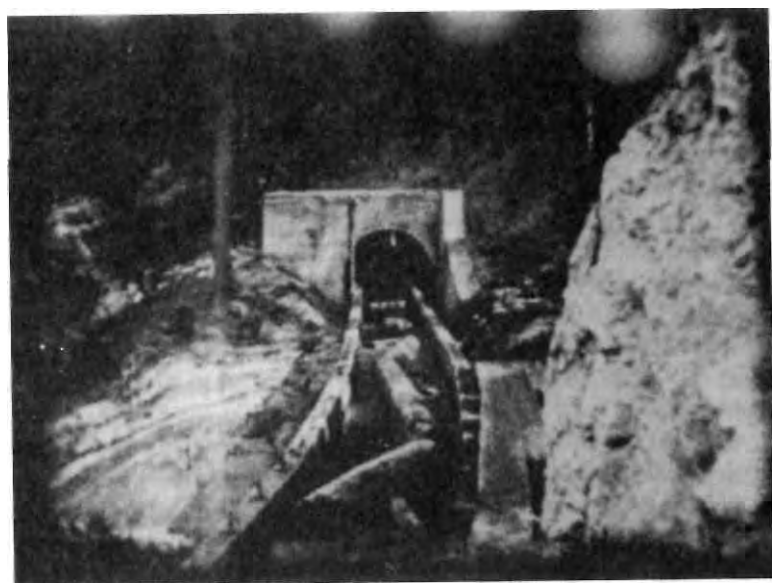
Schauberger's superior, the minister, was satisfied, but not those jealous of him. Finally they had had enough and gathered at a Congress for forestry experts in Salzburg, from where they issued a protest to Parliament about Schauberger's position, raising the issue about the Republic's accepted pay scales. Buchinger was caught in the crossfire and called Schauberger in to tell him that as his salary was excessive it could not continue to be paid. At the same time he said that the Government were pleased to retain his services though at half the former salary, the balance to be made up from the minister's so-called 'black funds'. This made Schauberger furious. He did not wish to have anything to do with such shady dealings. He had thought his country was governed by men, not old maids, and he tendered his resignation immediately.

#### With Senior Master Builder Steinhard

Schauberger did not have to remain unemployed. Steinhard, the chief of one of Austria's largest building contractors, was waiting almost outside the Chancellery doors. He had a new position to offer. Schauberger was to work for him building log flumes throughout Europe. He accepted Steinhard's offer and worked for him for several years.

Steinhard received a contract from the government for a large installation at Neuberg. This was built in 1928, and the contract stipulated that during the first hour of flotation the construction should be able to transport 1000 cubic metres of timber. If this was achieved Steinhard was to receive one million schillings from the government, but if unsuccessful then the whole structure was to be dismantled at Steinhard's expense.

The chute, in fact, managed 1400 cubic metres in the first hour and Steinhard received his million. In a festive ceremony the State took over the installation and Steinhard took the opportunity to present Schauberger with an inscribed gold watch, while praising him generously.<sup>37</sup> Described as a 'technical wonder' in a government memorandum, this log flume was still operating until 1951 when the forest became exhausted, and everything was then dismantled. The only remaining





Logging Flumes in Neuburg.

record of this 'technical wonder' is a film, *Tragendes Wasser* that was commissioned by the Austrian Tourist Board around 1930. The film disappeared during World War II but in 1961 was traced to an archive in East Berlin, and copies were obtained for biotechnical organisations in West Germany and Sweden. Part of the original film had disappeared and what remained was worn and partly damaged, but this film still provides the best documentary evidence of these timber flotation structures that in their time so confounded expert opinion and engendered heated discussions, conflicts and investigations by learned authorities.

During the following years Schauberger, still in Steinhard's employment, built similar installations, not only in Austria but also in Yugoslavia, Turkey and other countries - always with success. Their association continued until 1934 when a contract was drawn up with the Czechoslovak Government for a water chute. Steinhard, however, tried to manipulate the contractual terms of payment and when this was discovered the agreement was annulled. Schauberger now came into conflict with Steinhard when criticizing his methods, and their paths separated. This marked the end of Schauberger's

building of log flumes. Much later he was, in fact, offered a contract by the German State but he was unable to begin building before World War II.

The time with Steinhard had been a period of considerable advancement for Schauberger, but at the same time he had continued the struggle against his old enemies within the academic world. Steinhard had many successful technicians and architects under him. They had observed the growth of Schauberger's influence with increasing bitterness, and constantly warned their superior that one day he would be ruined if he allowed this 'uneducated dilettante' to continue his absurd experiments. But Steinhard kept his faith in Schauberger even though on many occasions large amounts of money were at risk. He never had any reason to change his mind.

### The Principles and Construction of the Log Flumes

It would be appropriate at this point to identify some of the origins of Schauberger's inspiration.

I knew that my father transported hundreds of thousands of cubic metres of beechwood over long distances, never, however, during the day, but at nights and generally when the moon shone. The reason for doing it this way, as my father often explained, was because water exposed to the sun's rays is tired and lazy and therefore curls up and sleeps. At night, however, and especially in moonlight, the water becomes fresh and lively and is able to support the logs of beech and silver fir, which are in fact heavier than water.

Schauberger's family had even earlier traditions of timber flotation that he could call on.

Sometimes the high water in the streams would damage the contraptions built in this forest region for floating down timber. These constructions forced the water to flow in quite strange serpent-like spirals, either clockwise or anti-clockwise. The term 'cycloid spiral space-curve motion'<sup>2</sup> was naturally unknown to these foresters, but they used this effect so cleverly in the construction of the wood and water troughs that a curious interaction sometimes took place

between the timber and the water mass in response to the curves in the troughs. This had the effect that some of the logs, as if to challenge the laws of gravity, would even temporarily float upstream.

Schauberger had already made use of these background ideas at Prielgebirge, but they were nevertheless a long way from his sophisticated later logging flumes.

He explains another of the impulses that stimulated him to think about the building of these flumes:

Those who have witnessed the awful cruelty to which beasts of burden are subjected in the exhausting process of transporting timber through mountain regions might perhaps understand why I have worked so hard to find an alternative to bringing timber from the higher regions without the use of horses. My proposals to transport timber by water were always rejected because these methods usually caused more damage to the timber than the cost of providing roads and forest ways. Moreover, Archimedes Law was always quoted, i.e. the large beech logs were heavier than water and therefore would not float. Clearly my ideas were considered to be purely Utopian.

Timber floating in these mountain regions was normally a very rough and ready business. There was a great difference in height between the forests up in the mountains and the valley floors where the timber was to be transported. Water drainage, usually in the form of mountain streams, flowed through narrow gorges and ravines, often without enough water volume to float the heavy logs. Thus, intermittent small lakes were formed by damming, into which the logs were rolled. Then the dam gates were opened to allow the reservoir of water and timber to rush forth down to the next dammed lake where the sequence was repeated. The mass of rushing water hurled the logs hither and thither, splintering against stones and rocky banks. The water courses were also damaged, and it was generally held that this method of transportation was both uneconomical and damaging to the environment. However, to build conventional chutes was considered unthinkable as they would require large supplies of water, if heavy logs were to be moved long distances.

When Schauberger, to prove his theories about water, decided to build a new type of flume, his main problem was to achieve the greatest carrying potential from the smallest amount of water. His own hydrological studies confirmed his father's inspiration: the solution to the problem must lie in giving water the right temperature and motion, but to realize this practically was no simple task. He took out several patents for timber flotation structures, showing that he was wrestling with a whole series of problems in this area

Finally he decided upon the following construction. A wooden chute was built to the same sectional proportion as that of the widest part of an egg. The dimensions were fairly small, perhaps 1.5 metres wide, 0.9 metres high. The largest logs snugly filled the width (such giant trees still existed at that time) so that there was little room left for the water. At regular intervals he built 'mixing' stations where fresh water was introduced, carefully monitoring the temperature, while the existing water in the chute which had had time to warm up was syphoned off. Using ingenious valves, which he designed himself, he could select the water temperature he required in the chute. The chute then followed the meanderings of the stream and river courses - even though this was a longer route — and so the appropriate water motion was obtained. This depended on the right temperature, the correct profile of the chute, and finally a meandering route. Or as Schauberger said: 'Water in its natural state shows us how it wishes to flow, so we should follow its wishes.'

Here he follows the principle that would be a guiding light throughout his life: 'Kapieren und Kopieren'; in other words, 'first understand Nature, then copy it' He said Nature is our foremost teacher. The task of technology is not to correct Nature, but to imitate it.

All such talk continued to be so much nonsense to the hydrologists and technologists who knew that the short way was the best and the cheapest Schauberger's assertion that even a temperature difference of  $1/10^{\circ}\text{C}$  had a significant effect on the behaviour of water was ridiculed. Many agreed with the famous hydrologist Professor Shaffernak: 'This Schauberger talks nonsense. Everyone knows that only large differences in temperature are important to water.' When Schauberger replied that a variation of  $1/10^{\circ}\text{C}$  in the body temperature of a person can determine health or sickness, it reinforced the



Water Disturbance Pattern. A thin brush has been drawn in a straight line through a shallow tray of glycerine treated water, whose surface has been dusted with powder. (Schwenk method, photo by A. J. Wilkes).

attitude that he was mad, drawing parallels between blood and water, indeed!

Schauberger and his theories had generated little interest amongst the experts, and it was left to his log flumes to stand as incomprehensible, mocking reminders that he, nevertheless, must know something that had escaped the 'wise and learned'. One was forced to witness how Archimedes' Law was not applicable, how logs with higher specific weight than water, yes, even stones, floated like cork in these chutes.

The dilemma had to be resolved. A State Commission was formed to investigate thoroughly the flotation installation in Neuberg. The internationally recognized hydrologist, Professor Forcheimer from Vienna, was to head the Commission.

### Professor Forcheimer's New Experiences

Forcheimer launched himself into the project with his customary zeal. He studied the chute, analysed its profile and curve mathematically, looked at charts of water movement and temperature - in short, he directed all his considerable knowledge as an accepted expert on water and waterworks to the problem, but without success. It was impossible for him to explain why the mysterious chute worked as it did.

He then changed tactics and began instead to shadow Schauburger, following him everywhere while he was building and experimenting, ceaselessly questioning him. At first he merely obtained short and crusty answers, and often in terms that Forcheimer did not begin to understand. Strangely, he was not discouraged but continued his close observation.

After a while Schauburger discovered that Forcheimer was different to the scientists he had met earlier. He was not derisive and superior but became more and more worried at meeting something he did not understand. Schauburger discovered, almost against his wishes, that he was developing an interest in this learned man, and there grew a deep friendship between the two. So they wandered in the woods and dells and Schauburger showed him the natural phenomena that he had studied for so long. There is an eye-witness account of what took place on one of the first of these excursions. The two men stood beside a mountain stream, deep in discussion. Suddenly Schauburger said:



'Can the Professor tell me where the water is coldest, before or after it has flowed around that stone?' - and he pointed to a stone out in the stream, which had been worn away to a particular shape. 'There is not the slightest doubt that the water is colder before it has passed the stone', answered Forcheimer, and then he began to explain how the friction against the stone increased the water temperature. 'Completely wrong', replied Schauberger. 'The water is colder below (i.e. downstream from) the stone.'

A forceful debate ensued and Forcheimer drew up flow charts and temperature diagrams in the sand on the stream bank to emphasize that he was right. After a while Schauberger said:

'Would it not be simpler if we measured the temperature of the water to see who is right?'

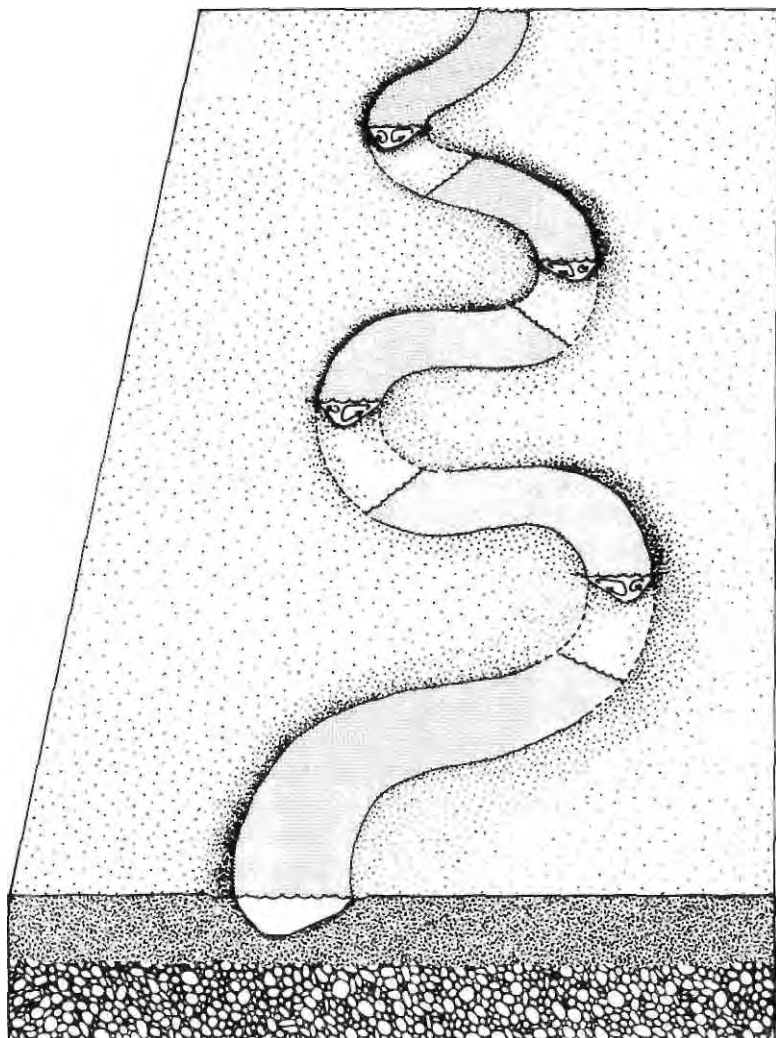
He had a thermometer with him and strode into the water in his leather breeches. When he had taken the temperature he accounced triumphantly to the impatient Professor that the water below the stone was  $2/10^{\circ}\text{C}$  colder than above. Forcheimer lost his patience and exclaimed:

'Impossible! You must have measured incorrectly! Let me take the thermometer so that I can read it myself!'

And with considerable difficulty he untied and took off his boots, turned up his elegant trousers and his red pantaloons, and carefully ventured out into the water - quite an effort for him as he was seventy-two years old at the time.

He grabbed the thermometer, took the readings and then fell silent; he forgot that he was standing barefoot in a cold stream. He then cried in a voice full of surprise: 'You are quite correct'. As he mulled over the matter he waded back to the beach and put on his shoes again.

From that day he was really convinced that this stubborn, irascible, eccentric investigator apparently dealt with facts, though it was difficult to follow his theories and his cryptic language.



Natural River Profiles. A meandering river as it flows develops secondary currents at its bends. The smaller one at the steep bank becomes the larger one at the outside of the next bend.

## 2

# NEW TECHNIQUES OF WATER MANAGEMENT

### Denudation of Forests Destroys Watercourses

It was not only log flumes that captured Schauberger's imagination. The area of his interest was wide, but water continued to be his main cause. It was behind everything in forestry, farming or the management of energy. He became increasingly convinced that economic, social and political stability in Europe - and the whole world - would become dependent on a new attitude towards water, the forest and soil. Scientists must be made to realize that water was not something to be handled carelessly, like an inanimate object. Water was not merely H<sub>2</sub>O, but a living organism with its own laws commanding respect from mankind, if the consequences were not to be fatal. Because of his many opportunities for studying Nature's relationships in a relatively untouched environment, he was able - perhaps better than most - to observe the dangerous changes that occur when man disrupts the natural harmony. It frightened him to see what happened to springs and watercourses, to animal and plant life, when areas were deforested. This clearing of forested areas spread like a bush fire in Austria after the First World War. The country's economy was suffering and forests were the easiest source of revenue. No one thought of deforestation or in any other way to limit the damage that occurred as soon as the trees were felled. Precipitation, avalanches and earth slips soon carried away all the soil from the mountain regions and so forever hindered recultivation.

The changes after deforestation were first noticeable along the water courses. Schauberger had earlier studied springs and streams in detail and had seen how they never dried up,

how the stream channels were covered with moss which was not torn away even when the stream was in spate. He had also noticed how the water weeds could be pointing upstream, a phenomenon he understood to be associated with the water's energy. The more strongly these weed 'tails' pointed upstream, the better the temperature and flow characteristics of the watercourse. Such streams never destroyed their beds, or overflowed, even during heavy downpours.

All this changed when the forest was cut down. The streams reacted first. They became 'wild'. Weed and river bed vegetation was uprooted and carried away. The water could no longer keep its channel 'clean' but instead deposited gravel and sludge that filled up the watercourse and caused it to overflow. The water then attacked its own channels, eroding and breaking out of its banks and endangering surrounding areas, especially after heavy rain or thaw. Then the springs began to dry up. The water level sank over extensive areas around a deforested region. Finally the stream completely disappeared<sup>38</sup> - except after a sudden torrential downpour when it could become a raging torrent, threatening both buildings and their inhabitants. Gradually the whole hinterland around such a denuded area dried out.

There was great concern about the destruction of the watercourses. This gave rise to the water management technology that was applied to streams and lakes in Austria and parts of Southern Europe. Watercourses were enclosed by stone and concrete embankments to prevent the water breaking out of its channels, with the attendant catastrophic effects. This is a never-ending task; the walls and dykes have constantly to be maintained as the water is continually attempting to erode and undermine them. The costs of upkeep are enormous, bringing great profit to the stone and cement industries.

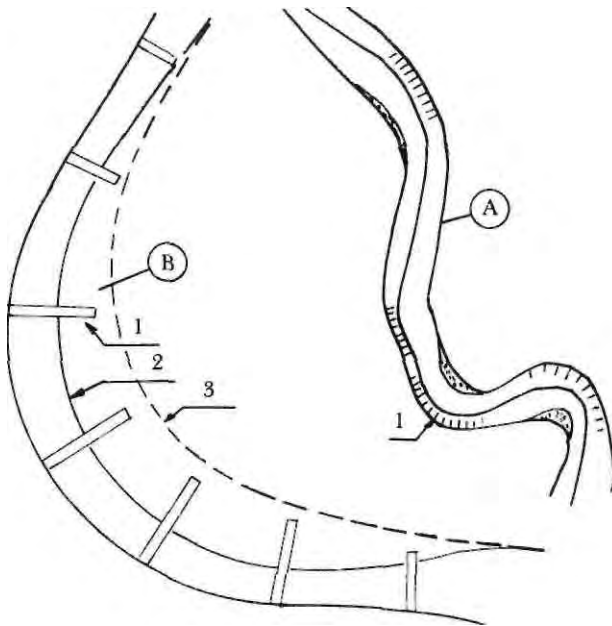
By the end of the 1920s Schauburger had already begun, in speeches and articles, to attack the decimation of forests and the existing techniques for controlling water. It is fair, perhaps, to point out that he had contributed to this deforestation through his flotation chutes. He had, though perhaps naively, sought to restrict timber felling by reducing transport costs and thereby increasing net income. At the same time as building the chutes he constantly emphasized the need to harvest only the 'interest' of the forests' capital, and not to clear them totally. But these, of course, remained unheeded warn-

ings. The large timber companies that sprang up everywhere, with encouragement from the state, had only one goal; to transform trees into money as quickly as possible. This also occurred in Sweden during the forest clearance period, when many unexploited forests came under the axe. The techniques of forest clearance still used in Swedish forestry are presumably as negative in their results as the original clearances.

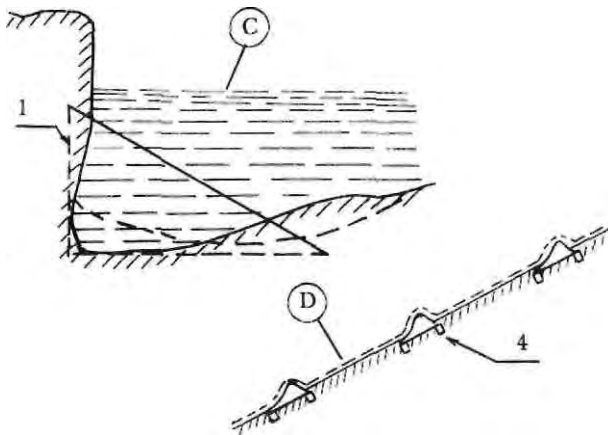
Schauberger saw that the catastrophe inherent in such deforestation was compounded by the hydrologists' attempts to control the wild watercourses: 'A water course', he said, 'should never be regulated from its banks, but instead from within, from the flowing content itself.'

He recommended that these attempts to wall in the water channels should be given up, and if a natural river environment were recreated, the rivers would control themselves.

Schauberger had quite early considered how to tackle these problems. In 1929 he took out a patent on 'inserted installations for controlling wild streams and flood regulation'. According to the text of the patent, 'The installation brakes the water's velocity in such a way that the gravel and sludge borne within it, cannot cause dangerous disturbance. Furthermore by the positioning of these braking barriers at suitable intervals the water's motion is influenced in such away that the theoretical axis of flow will be redirected towards the middle of the channel stream'.<sup>3</sup> He took out another patent in 1930 for a complementary development that concerned 'the construction and arrangement of regulators of outlet water from holding dams, and the strengthening of the dam structures'. The introduction to the text of this patent states that an important detail had been omitted in earlier attempts at directing watercourses, namely the water's temperature, its relationship to the surrounding ground and air temperature and also the temperature differences within the water flow. Nor has there been an appreciation of the influence of the water's temperature on its motion. If, as has been the practice up until now, a watercourse is divided up into linear sections, and control gates are used to let out either surface or bottom water, disturbances are created in the watercourse below the dams in the form of meandering and damage to banks. Instead the outlet water should be at such a temperature, through the mixing of warmer surface water and colder bottom water, that it is related to the existing air temperature. Then there is a



A scheme for flood control. (A) shows a watercourse to be regulated. A breaking barrier has been built into the river bed at (1). (B) shows how the axis of flow will be moved from (2) to (3) after the barrier has been working for some time.



(C) shows details of braking element (D) shows another type of braking element (4) for mountain streams, to slow down the speed of flow, thereby reducing the amount of material carried away from the bed and banks. (Taken from Austrian patent 11 34 87.)

balanced watercourse that carries its suspended matter at an easy pace and does not attack the banks. This patented discovery now allowed for the automatic regulation of these conditions, largely through the use of air temperature regulated outlet valve.

In the 1930s Schauberger set out in a treatise all that he had come to understand about the mysterious laws that seemed to govern the behaviour of water, and the curious interrelationship of how it moves according to its temperature profile. He also discussed the importance of water to forestry, farming and the whole community. He saw the appalling effects of deforestation as the harmful consequences of unnatural water regulation, and made suggestions to solve these problems. It was due to Professor Forcheimer's strong interest in these theories that his work was published.

### A College Debate on Land Culture

Forcheimer's interest grew so strong that he asked Schauberger personally to expand his theories to a gathering of experts, and Forcheimer's presence at the meeting would ensure that these 'heretical ideas' would at least be received with some attention.

The academic board at the Agricultural College in Vienna was the forum chosen by Forcheimer. Schauberger was presented to the Rector and his staff who immediately annoyed him with their patronising and arrogant behaviour. The Rector spoke a few words of introduction and then asked Schauberger to 'teach us experts how to regulate water in a natural way so that there is no damage to the riverbeds and banks ...'. Schauberger answered that this could not be answered in a few words, as the Rector anticipated. Moreover the latter insisted that the core of Schauberger's methods should be expressed in a few phrases 'How, in simple terms, should we regulate our watercourses?'

Schauberger was now really irritated, and emphasizing each word he answered: 'Just as a wild boar passes water.'

The reaction to this was 'confusion, silence and wrinkled noses', but then the Rector in a condescending tone urged Schauberger to explain himself factually, choosing his words carefully. At that point Forcheimer got up and proclaimed that Schauberger's last remark not only hit the nail on the head but was also factually correct. He then strode to the blackboard

and proceeded to cover it with formulae, much to the Rector's displeasure. After that Forcheimer began to lecture. 'I did not understand a word he said', declared Schauberger, but the gathering, professors, technicians and even the Rector became more and more interested, and a discussion ensued that lasted for two hours. It was only interrupted because the Rector remembered that he had to attend another engagement. He bade Schauberger farewell in quite different tones and hoped soon to be able to continue the discussion.

When they met next morning Forcheimer asked Schauberger how he had come upon the analogy of the wild boar. Schauberger replied that he had merely remembered the phrase used by his father to explain to his workers how to arrange the 'brake curves' in streams with little water, to be able to carry out timber flotation. These brake curves introduced the water to a spiral motion around the axis of flow, that resembled the curve of urine made by a running wild boar. Forcheimer agreed that this must be the most perfect imaginable cycloid spiral curve, but to calculate this mathematically would pose great problems to existing science. Schauberger could well appreciate this as he recognized it as a movement that was found in all life's processes. When they had discussed this for some time the professor explained that he could only think in terms of formulae, and that Schauberger thought 'in a way no other person understood', and the two could not be brought together.

### Schauberger Gets a Treatise Published

Later on Forcheimer suggested that Schauberger should write about his theories in the periodical *Die Wasserwirtschaft*, but first they should go together to Brunn to meet Professors Schocklitz and Smorcek.

The visit to these two hydrologists who had, for their times, extensive laboratory facilities, did not yield a positive result. But Professor Smorcek, who was also the head of the Technical College in Brunn became very interested in Schauberger's ideas and suggested that they should meet Professor Schaffernak at the Technical College in Vienna. Forcheimer then claimed that this would be meaningless as Schaffernak could not even explain why the rivers Danube and Inn did not mix their waters when they met, but flowed parallel to each other.



for a long stretch, within the same channel. Some time later, after Smorcek came to Vienna, the meeting with Schaffernak took place anyway. The result proved negative as Forcheimer had foreseen. It was only Forcheimer himself who learned to understand Schauburger more and more. In the last textbook he wrote, he described the 'cycloid brake curves' with Schauburger's theories, and when he died he was working on a new book on Schauburger's ideas about water. He said to Schauburger just before his death: 'I'm glad that I am already seventy-five years old. It can no longer hurt me that I took up your ideas without question. A time will come when you will be understood.'

Forcheimer had time before he died to carry out his promise to publish Schauburger's treatise on the subject. During 1930-31 this was serialized in *Die Wasserwirtschaft* (Hydrotechnology) in Vienna. Forcheimer himself wrote the introduction, stating 'The contents have captured my deepest interest through their new insights, which not only promise to stimulate productivity but also cut through all traditions of dam and waterwork technology ...' On another occasion Forcheimer said that 'the day will come when Schauburger's ideas ... will change the whole world'.

### Schauburger Offers to Regulate the Rhine

Few European rivers today give as clear a picture of the tragic consequences of deforestation and conventional water regulation as the Rhine. This mistreated and degenerated watercourse had at one time been a mighty river with such crystal clear water that the river bed could be seen to a depth of several metres. At night when the supporting power of the water was greatest, stones were carried down bumping and scraping each other, and discharged a glowing yellow light from the river bottom that gave rise to the folktales of dwarves who made wonderful jewellery in their smithies on the bottom of the Rhine. In the opera *Rhinegold* Richard Wagner uses this story as his theme.

Even this legendary river, however, was to meet a sad fate. This began with the timber cutting in the Swiss Alps in the region of its source. This disturbed the balance and the river began to silt up. Then in order to increase the velocity of the flow and to enable the river to clear away its path, bends and



The Rhine - a dying river.

meanders were straightened. The result of this was that more eroded material was carried even further away. In turn, more curves were straightened downstream, and the process was repeated. Once straightening had begun, there was no alternative but to keep on until there were no curves left and then the whole river began to silt up. The fundamental cause of this was the forest clearance, which destroyed the ecological balance. The forest's great storing and cooling effect was lost. The precipitation could no longer be stored up and instead all the water ran off at once, scouring everything in its path. The draining water heated rapidly and so soon deposited its burden of stones and gravel. The river bed was soon filled up again with consequent flooding. Water technicians then in their turn began to strengthen the river banks with walls of stone and concrete and to dredge the channel. To the joy of the dredging companies they now had constant employment since after each heavy downpour in the mountains the high water came rushing down the river to deposit its load which again had to be dredged up. The river banks also had to be constantly repaired.

In 1935 there was heavy flooding in the Rhinelands. New

and even more expensive preventive measures were planned to reinforce the banks and clear the channel. It was then that Schauburger reacted to the German authorities, sharply criticizing their intended measures through articles and letters, while at the same time explaining how the river should be regulated to look after itself:

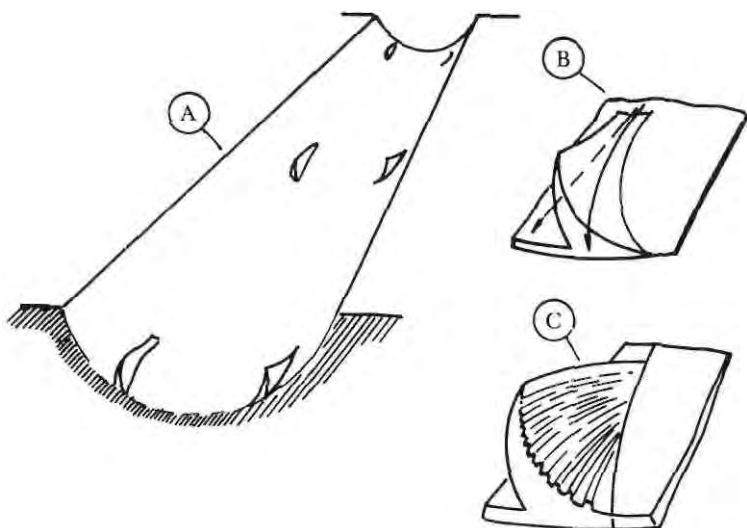
To lower the level of the Rhine by 4 to 6 metres is simply a question of increasing the carrying capacity of the river. It involves regulating the water temperature, and would cost only a fraction of the amount required for the usual method of flood prevention. It is nonsensical to attempt dredging. One case of flooding is sufficient for the locks which have been dredged, to fill up again. One has only to think that each year the Rhine washes downstream about 100,000 cubic metres of mud and gravel. Equally every rise in the river bank causes an increase in the danger of a breakthrough, which is in fact unavoidable if there is flooding and the water is warm. I should be invited to make suggestions instead. For a small cost danger of flooding would be averted forever. I would guarantee you a successful system of regulation and I would not ask for payment until the bed of the Rhine had sunk some 2 metres.

No one paid any attention to Schauburger's offer. The traditional methods continued, as they still do, while the Rhine becomes more and more silted.

To regulate the Rhine Schauburger intended to use, among other things, his so-called energy bodies for implantation into the river bed. These would simply be suitably shaped 'flutes' that would direct the water into the motion that has been described above. He had experimented with these earlier.

When some years ago I secretly installed my energy bodies in the Steyrling stream, the water during a single night was so washed that hundreds of cubic metres of sand and grit were thrown up into the so-called sand trap to form a large heap, and the water level of the stream sank to the rock overnight.

Along the smoothly formed banks or specially shaped stones, the water flows faster and excavates material more than in places where only small quantities of water move



(A) shows a schematic diagram of a watercourse, in which the 'energy bodies' of type (B) have been systematically placed to enclose the theoretical flow channels. By way of these obliquely placed flutes, the water is propelled into a spiral motion in the middle of the flow channel (from Austrian patent 13 45 43).

against each other. This phenomenon can be used in controlling flow. If we regulate within reason the forces within the river by the introduction of impulses, we are able to obtain the scooping action in the middle of the river rather than near the banks, and in this way achieve a deepening of the water channel along the axis in the middle of the river. With the increased depth of water, the particles of grit and other material automatically move differently, as their velocity is slowed, and thus the river moves more freely.

In a properly regulated river, a capillary type action is formed purely mechanically through which the turbulent parts of the water spread outwards towards both banks and there divide into smaller masses; in the process they grind and crush what material is being transported, while the main part of the stream flows along relatively undisturbed,

the different layers of water within it internally charged with energy enabling it to carry the rough solid matter.

The flow of the main mass of water has the effect of selecting its load so that the coarse matter begins to drop away and is gradually drawn to the sides where the water is more turbulent, and where the mechanical process of breaking up into smaller fragments takes place. The lighter sand particles found in the main stream are unable to remain there because of their low specific weight and are quickly forced to the sides. Through this simple action the main axis of the water flow is prevented from silting up. What is quite clear is that a healthy river expands laterally and builds its own banks. Moreover the plant world thrives on the banks and protects the mother of all - the water.

The water's ability to carry out its function, even in the turbine room of a power station, depends on the condition of the spring water catchment areas and the drainage basin itself. If, for example, through deforestation, the landscape's normal equilibrium is disturbed, the water loses its strength, like a person who is running a temperature.<sup>5</sup> In his treatise in *Die Wasserwirtschaft* Schauberger describes the basis for natural water regulation and shows how both the landscape and any adaptation of a watercourse affects the quality and health of the water. He showed how the surrounding temperature and other factors, alter the profile of flow in a watercourse and the different motions within the water, the turbulent and laminar flow that have such an important effect on its 'metabolism'. He also showed in detail how with the construction of specific dams, the areas of land around the watercourses could be reclaimed in a positive and natural way.<sup>6</sup>

'Positive' and 'negative' temperature changes are an important factor within Schauberger's water theories. The former is water approaching +4°C. Within this temperature range the water's energy and its centripetal cycloid spiral motion is increased. It becomes healthy, alive, and new water is built up through what he called 'emulsion' when the oxygen is bound by the hydrogen. Within 'negative' temperature range the water, warmed to over 4°C, has a diminishing energy and biological quality. The hydrogen is then bound by the oxygen, which leads to the water's slow degeneration, its loss of carrying power, and encouragement of pathogenic bacteria.

### 3

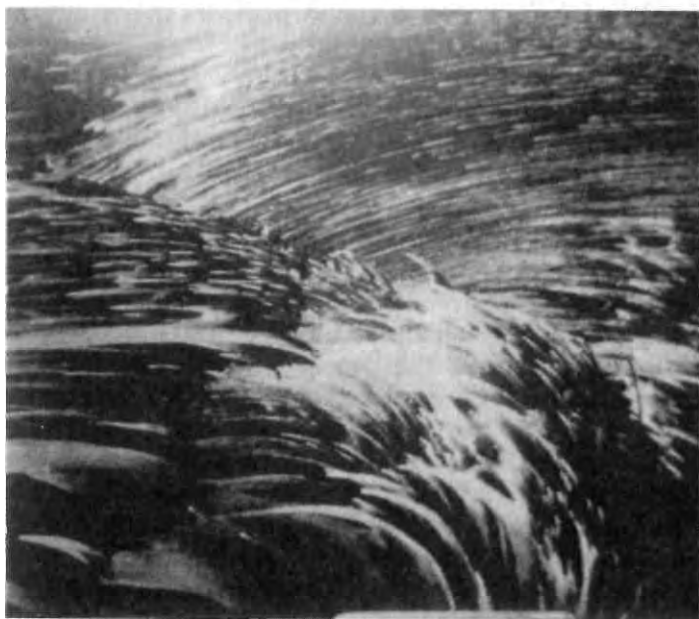
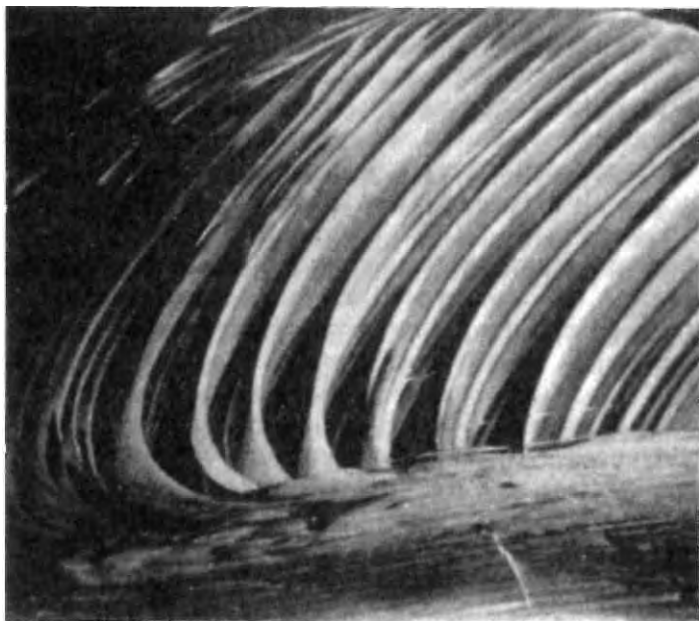
## SCHAUBERGER'S TEACHINGS ON WATER

### Studies of Water

Water takes a central place in Schauberger's view of the world. It is the container of life and full of mystery.

Far back, in history, there is evidence that men who have attempted to solve the riddle of water have been bitterly attacked. Every attempt to explain the nature of water in old books has been demolished in later editions. In any case, maintaining the sense of mystery about water ensures the prosperity of the capital intensive economy, for financial interest thrives only on a defective economy. If the riddle surrounding the origins of water were solved, it would be possible to make as much pure water available as required at any location; in this way vast areas of desert would become fertile. As a consequence, the selling values of the produce would sink so low that there would be no more incentive to speculate, or to develop agricultural machinery. The concept of unrestricted production and cheap machine power is so revolutionary, that the way of life all over the world would experience a change. Maintaining the mystery of water, therefore, maintains the value of capital, so every attempt to come nearer to an explanation is attacked.

Even if Schauberger's claims to have discovered the key to water's mystery may seem inflated, his knowledge of water was certainly considerable. Above all it was built on many years of concentrated study of Nature; but from a number of his writings it is clear that he was not a stranger to theoretical hydrology either. He insisted that technicians and scientists



The two photographs above show motion within a water droplet. (Karl H. Henssel Verlag, Berlin).

who studied water in laboratories had hardly any chance of ever knowing anything meaningful about the reality and character of water. 'Water at research establishments concerned with probing its characteristics should never be so intensively analysed and measured. The 'water corpse' brought in for investigation can in no circumstances reveal the natural laws of water. It is only with natural free-flowing water that conclusions can be drawn and ideas formulated. The more profound laws are, however, hidden within the organism of the earth.'

'At least one now knows water is not always water', says Schauberger. Now it is known, for example, that there is 'heavy water with special qualities; but generally, as far as science is concerned, water is thought to be an organically dead chemical substance, with several different sequential forms, and with a cycle from the atmosphere to the sea. But the problem of water is not so simple; he explains:

Actually, the mysteries of water are similar to those of the blood in the human body. In Nature, normal functions are fulfilled by water just as blood provides many important functions for mankind.<sup>7</sup>

Schauberger also made use of history to aid him in his hunt for the key to water's mysteries. He carefully studied how people in earlier times had treated water.

The Romans made their springs effective by carefully placing a thick stone plate sideways at a particular height over the mouth of the spring. A hole was then cut into the plate, through which a pipe was inserted, which was made sufficiently tight so that no air could escape. This and similar methods of those times took more account, despite their simplicity, of the nature of water than modern methods, which generally disturb the immediate surroundings of the spring by the use of lime, cement and metal. This interrupts a symbiotic relationship between the spring and its close environment

In considering the choice of material for constructing a water supply system, where wood is not available, one should observe the effect over the years of metal coins, which have been thrown ritually into springs, and choose



the metal of those coins which seems to keep the spring healthy. If we study the water supply systems of the ancient Romans, we note that the drinking water was supplied either through wooden pipes or along natural stone channels. Later on, as the towns grew and the water requirements increased, the unfortunate choice was made to supply both drinking and bath water in metal channels.

Other ancient waterworks of great interest were the underground irrigation canals built in Eastern Turkestan. They were maintained and functioning even during the 1700s, and their remains were studied by Sven Hedin during his travels in Asia.<sup>8</sup> Water ran at great depth in these canals, and flowed in darkness to the areas to be irrigated, and Schauberger thought that this method of transporting water in darkness and coolness was one of the reasons for the fertility that was once a characteristic of the oases in Eastern Turkestan.

Such historical observations were very interesting. They showed that people formerly had had a clearer understanding of water's true character than today. But in the final analysis, Schauberger always fell back on his own observations and his own situation. It was this intuition, this deep perception of Nature's hidden relationships, that led Schauberger to attempt to copy natural processes, and which also enabled him to come to such unusual conclusions about what he saw in Nature.

Natural phenomena undisturbed by man point the way to the realization of a new technique. One needs a keen sense of observation. We must understand Nature before we can adapt its way of working to our needs. As a gamekeeper in a remote forest region hardly visited by man, I was able to make these observations and they led me to the idea of implosion.

In Hetzau, below Ring, lie the Od Lakes (Odseen). After a long spell of hot weather a thunder-like noise (buhlen in the local dialect) is often heard coming from the bottom of the lake, accompanied by a water spout

One hot summer day I sat on the bank of the lake and wondered whether I should cool down by taking a refreshing bathe. Just as I decided to jump in, I noticed the water beginning to move in peculiar spiral whorls. Trees, which

had been dumped in the lake by avalanches, began to describe a sort of spiral dance, which drew them constantly nearer, with ever increasing speed, to the centre of the lake. Having reached the middle, the trees suddenly took up a vertical position and then appeared to be sucked down into the depths by some dragging force, causing the bark to be ripped off. It could be likened to the experience of a man suddenly hurled upwards in the air by a cyclone, to crash down to earth stark naked. No tree reappeared from out of the Od lake.

In a short time the lake was again calmer, as if it had been freed by the victims which had been dragged down into the depths. It was, however, only the calm before the real storm. Suddenly the bed of the lake began to rumble. Without warning, a water spout of at least the height of a house shot upwards from the middle of the lake. A noise like thunder accompanied the turning cuplike pillar of water. Then, as suddenly, the spout collapsed upon itself. Waves hit the banks of the lake as the water began to rise in a mysterious way, and I was forced to leave hurriedly. I had experienced the archetypal expansion of water, a renewal of water in the lake, without any inflow.<sup>9</sup>

Schauberger draws an audacious conclusion from his experience by the lake. According to his theories on water, it is a living substance which is born and develops - normally to change into higher forms of energy- but can, with incorrect treatment, also die. Even a restricted volume of water can increase, not in the usual sense of expansion through heat, but instead through growth like an organism. Schauburger continues:

Naturally moving water augments itself. It improves its quality and matures considerably. Its boiling and freezing points change, and wise Nature makes use of this phenomenon to raise water, without using pumping equipment, to the highest mountain peaks, to appear as mountain springs. This conception of raising water is not to be taken literally, since in this context it is concerned with the natural process of propagation and purification. This in turn helps towards the expansion of air by creating an air cover, which serves to develop a higher form of life.

## The Full and the Half Cycle

According to Schauberger, the water's cycle from the earth to the atmosphere and back again is either completed as a full cycle, or remains a half cycle.<sup>10</sup> The full cycle can only take place where there is the appropriate vegetation cover to allow the rain to penetrate deeply, and it will in turn encourage natural vegetation and conditions of water run off. In the full cycle, when water falls to earth as precipitation, it drains through the soil, sinking deeper and deeper through rapid cooling, until it reaches a level where the weight of the water mass above equals the pressure of the deeply drained water, the latter, warmed by the earth's heat, and as its specific weight falls, wants to rise. During heating the water is able to attract and bind metals and salts. In fact, the water has been partially converted to steam during heating, and comes into contact with carbon beneath the earth, causing the reaction  $C + H_2O \rightarrow CO + H_2$ ; that means that the oxygen in the water separates from the hydrogen, and then the damp hydrogen gas forces its way towards the earth's surface with tremendous pressure. Thus carbon dioxide is released from the deeper drainage basins. At the same time surrounding salts are dissolved and carried away with the gas to be deposited again in layers near the surface, which is kept cool by the 'refrigeration' effect of the vegetation. This is how a constant supply of nutrition is made available for vegetation, and deposited at root level.

In the half cycle, on the other hand, no such nutritional flow occurs. If the surface area has little or no vegetation cover, as for example after timber cutting, it becomes warmed up by the sun. If the ground is warmer than the precipitation the moisture is prevented from penetrating the soil.

As the water sinks just below the surface, it rapidly warms up and runs off, without having been able to bring up any of the nutritional salts. It also evaporates much more quickly.

The cycle also governs the formation of subsoil water, and its relative level. Where only half that cycle is completed there is no subsoil water, or rather, it is at great depth, having been dependent on the vegetation's cooling action of the soil. If, for example, there was a dry period in a normal landscape, the evaporation rates of the trees would increase, meaning that warmth was taken away from the root areas, which cool down towards +4°C. Here Archimedes' principle comes into play as

lower layers of less dense warmer water can never lie below colder water, which has a higher specific gravity. In other words, the subsoil water level rises towards the surface and offsets the threatened drying out of the root area. If there is no vegetation then no such rise in water level can take place.

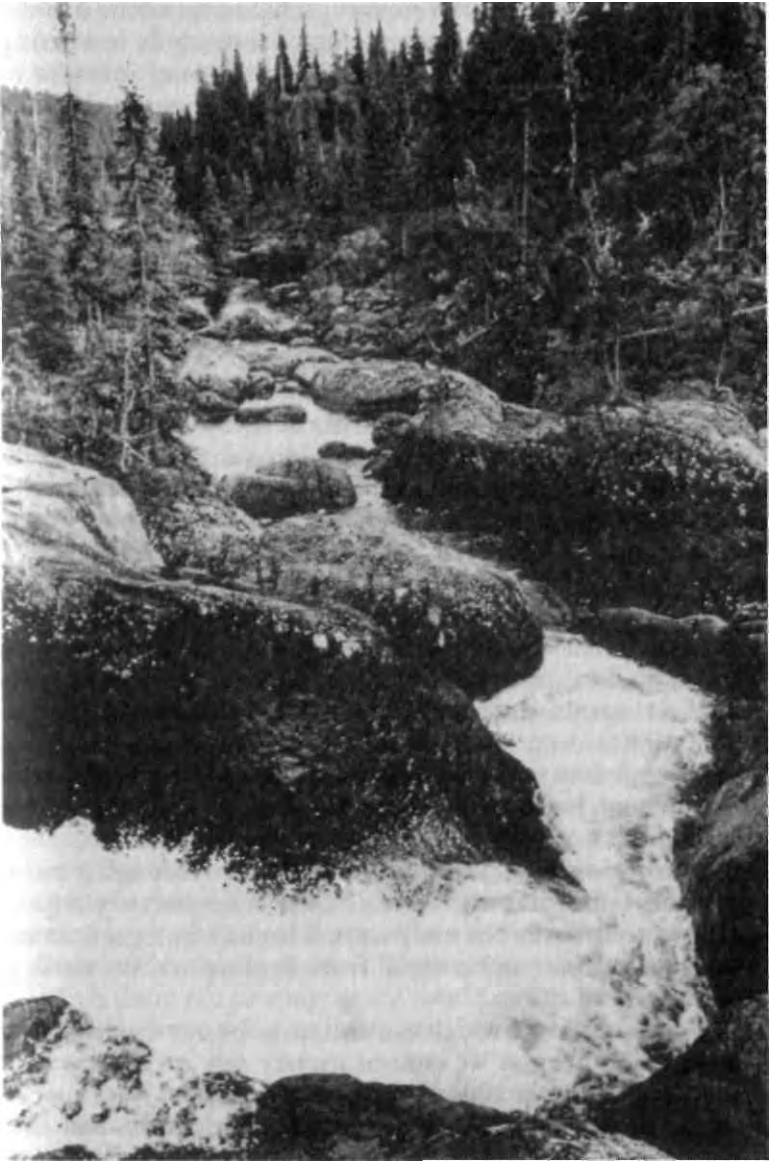
In this presentation of water's temperature changes throughout its cycle, Schauberger provides an interesting explanation of the continuous nutrition supply to the growth zones within the natural landforms, and also an explanation of the exhaustion of the soil that takes place when natural forests and healthy water conditions are destroyed.

Near the polar regions where there are winter or frozen conditions for a long period of the year, the movement of nutrition is concentrated in the spring. Snow and frozen ground effectively insulate against the atmosphere, and the soil's warmth is maintained under this insulation blanket until the spring, when the sun's warmth helps to soften up the frozen surface soil. Melt water can now percolate down into the ground to deeper levels where the complete cycle can force up the nutrients to the root areas of the vegetation. The thicker the frozen soil level, the better the movement of nutrients in the spring. On the other hand, bad winters give bad harvests the following summer. (*Die Wasserwirtschaft*, No. 5, 1931.)

Following forest clearance the water level drops, interrupting the otherwise continuous transport of nutrients from underground. It may be clearer now why modern forestry techniques require the artificial fertilizing of their commercial forests, as the normal nutritional build up that Nature normally provides can no longer take place.

Schauberger did not approve of pumped subsurface water as drinking water. This water forced artificially from the depths was 'immature' - it had not yet passed through the whole of its natural cycle, and therefore in the long term would be injurious to man, animals and even plants. Only the water that runs out from the soil by itself in the form of springs and streams is suitable as drinking water.

The tapping of the earth's subsoil water resources contains, according to Schauberger, a double risk; these reserves of 'immature' water are used up, and also this water acts in a negative way upon all living biological processes. Instead of imparting energy to the drinker, it takes energy for itself from the organism.



Haravatts River in Jamtland (Nils John Norenlin).

Water flowing from a natural source, particularly a mountain spring, acts in quite a different way. Schauberger found that if one drank a litre of this water - thus presumably increasing one's weight by approximately a kilo - the net increase in weight was in fact only 300-400g. The remaining water must have been converted directly as energy to the body, thereby explaining the enormously enlivening quality that this water gives. It was this type of water that Schauberger strove to produce by machine, using his 'repulsator' which is described below.

### Artificially-made Spring Water

Early on Viktor Schauberger had thought of the possibility of producing good drinking water artificially. By using a machine that copied Nature's methods of building up water, it should be possible to create spring water, and so support people who could not obtain natural water because of environmental destruction.

As long as man had not disturbed the organic balance and Mother Earth was able to donate her blood - the water - to provide a healthy vegetation, there was no need to construct artificial canals, since the earth already provided waterways. Today, however, where nearly all the healthy springs are either dried up or the water is diverted from its source and is led through badly constructed pipes, all of life is dependent upon stale and therefore unhealthy water. Water supplied to housing estates for human consumption through inferior systems is infected with chemicals. It is desperately important to rediscover Nature's ways if human beings, animals and the land are to be saved from decline and the earth is not to die of thirst

It is only Nature which can and must be our teacher. If we want to be healthy we cannot merely rely on local mechanical or hydraulic action for our water supplies. We must try to understand how Mother Nature transforms water into the life blood of the planet and makes it available to us, pure and life giving. If we succeed in this quest there would be no reason why the earth could not be transformed into a garden, supplying unimaginable and delectable harvests. Good mountain spring water differs from atmospheric

(rain) water by its suspended matter. Besides the dissolved salts, mountain spring water contains a relatively high content of gases in both free and fixed form as carbonic acid. The gases absorbed in a good mountain spring consist of 96 per cent carbon matter. By carbon matter in this context is meant all carbon matter known to the analytical chemist, all elements and their compounds, all metals and minerals; in other words, all matter with the exception of oxygen and hydrogen.

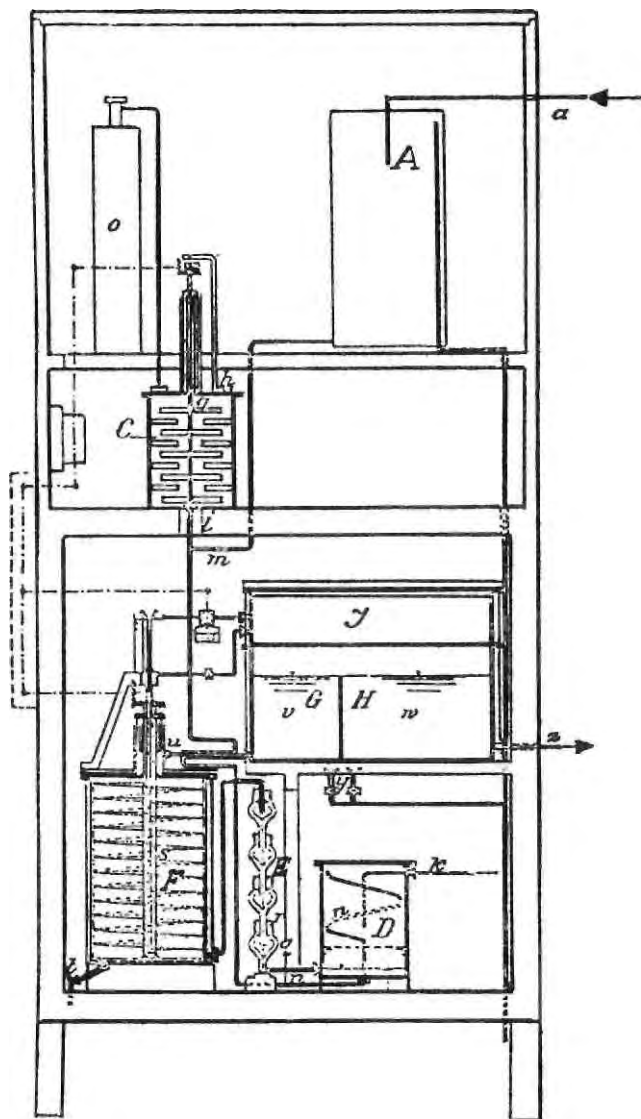
Atmospheric water (rain water, condensed water, distilled water or water exposed to a strong current of air and intensive light) as for instance surface water, contains a relatively high content of oxygen, almost no or limited salt content, no or only a small amount of free and fixed carbonic acid and a gas content absorbed from the air consisting of oxygen which is preponderately dissolved in physical form.

There are different ways in which the suspended matter is carried in solution in water. And just as the chemical composition of the solution can vary, so can the type of solution indicate the kind of energy that is at work in the water. Accordingly we differentiate water which contains a high percentage of energy derived from carbon matter, from water which exhibits a high percentage of energy derived from oxygen.

Water which sinks into the earth from the atmosphere will pick up salts and minerals and other substances which restore its vitality; it is enlivened by isolation from light and air. But there is also a certain journey in both time and distance that the water must make underground before it becomes internally mature. Water is mature if the air it has absorbed contains at least 96 per cent carbon content of which there is a proportion of solid matter. From this inner maturity the quality and the internal strength of the water depend.

Schauberger now began to attempt to reproduce these stages. He built the first so-called water refining apparatus around 1930, and finally developed a model for which he sought a patent

He started with sterilized water from the Danube, added small measures of certain metals, minerals and carbon dioxide,



An earlier type of apparatus for the production of 'living water'. Sterilized water from container (A) is mixed drop by drop with the salt solution from (C). The mixture then passes to (D) where it sprays out from the perforated pipe 'n', while carbon dioxide is being introduced via pipe 'k'. Water falls in droplets to the bottom of (D) while absorbing carbon dioxide, and is led to (E) where it is forced into a meandering motion onto (F) where it passes over gold and silver filaments, to finally gather and cool in the silver lined container (H), until it slowly reaches  $+4^{\circ}\text{C}$ .



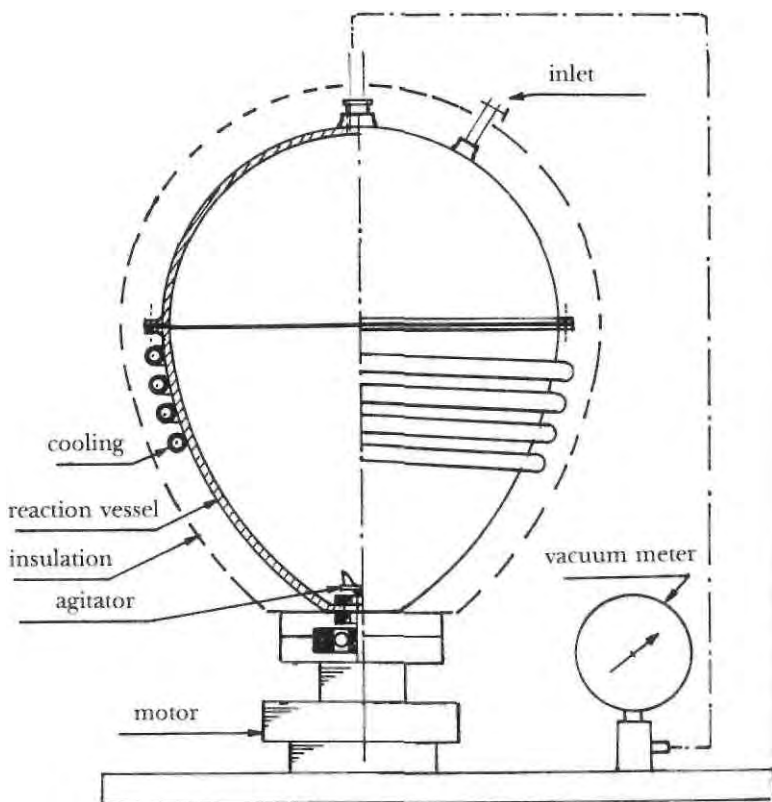
and let the mixture undergo cycloid spiral motion in darkness, while allowing its temperature to fall towards water's 'biological zero' (+4°C). The whole process was an attempt to copy water's natural journey in the earth as he understood of its 'full cycle'. After a short storage period the water was allowed slowly to increase in temperature to +8°C, and was then ready to drink.

Rumour soon spread that Viktor Schaubерger could make 'living water' and people streamed to his home to try it. The general opinion was that the water was very refreshing; the sick felt better, fevers abated and recovery quickened. Schaubерger had already been nicknamed 'water magician' when building his timber chutes, and now he was really thought to be one. Specimens sent to laboratories for analysis showed that Schaubерger's water could not be differentiated from spa water.

The first apparatus was, however, very complicated both to build and to operate. Schaubерger strove therefore to construct a more 'natural' model. After a while he developed an apparatus resembling that shown on p.62. Realizing the importance of the correct shape for the development of the relevant motion, Schaubерger chose the shape of an egg, which he considered Nature's most ideal form. The materials used in his 'egg' were crucial; he experimented with different alloys of 'pure metals', until he found one he considered suitable. The vessel had a vacuum-tight lid which allowed filling and draining with an inlet for carbon dioxide. There was a meter to measure the 'biological vacuum' that should build up within the container, if the process was to function correctly. The agitator was an important part of the apparatus, which stirred the water in a cycloid spiral motion. The agitator's shape, the number and direction of revolutions, a certain rhythm in 3/4 time, were all critical factors. The vessel also had to be well insulated with a suitable material to prevent the energy created within from radiating outwards. This energy should instead be returned in the water to give it its high quality.

### A New Type of Pipe for Drinking Water

Schauberger's plans for healthy drinking water also included the redesigning of water pipes made of new materials. He was



A schematic diagram of the apparatus for biosynthesis. The ingredients for biosynthesis are added together within the airtight egg shaped vessel made of synthetic material. The contents are then set into a hyperbolic centripetal spiral motion by the specially-shaped agitator. A cooling coil provides the appropriate temperature control. The vessel is enclosed within an insulation shell of hydrocarbon material to restrict the loss of 'implosion energy' created, instead concentrating it within the vessel so that biosynthesis can take place. The vacuum meter monitors the 'biological vacuum' formed if biosynthesis succeeds.



Apparatus for biological synthesis of spring water, constructed by Swedish biotechnicians (see p. 129).

most critical of iron or concrete pipes, which he thought especially ruinous to water and a cause of cancer.

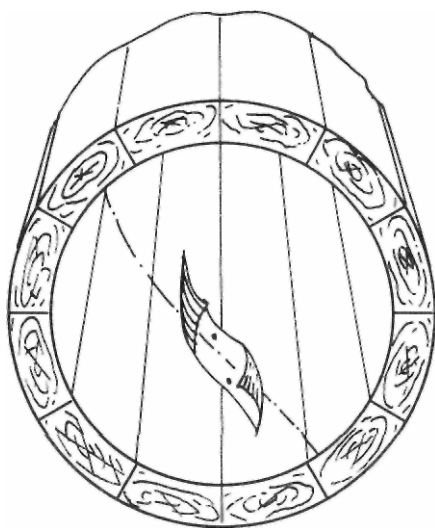
The capillaries in the bodies of animals and plants serve as conductors for blood and sap and for the maintenance of the whole structure. In the same way, the supply pipes for drinking water should be seen as capillaries in order to discourage physical deterioration of the pipe (through the wrong choice of pipe material) or harmful properties in the water itself. Human beings or animals can thus become affected. The walls of our drinking water pipes must be made to encourage water to flow as it does in Nature, otherwise the water pipes themselves will be corroded or the human blood vessel system damaged, causing dangerous illnesses like cancer.

If this deterioration of the quality of water is to be avoided, the material used for the main supply must be so chosen that it is organically compatible and above all a poor conductor of heat, like sound healthy wood. Artificial stone

is about as unsuitable as metal for conducting pure drinking water, for only natural materials should be used in the process of conducting the blood of the earth. Sound and correctly treated wood is in fact as resistant to deterioration as iron.

To discourage corrosion or rotting, pipes laid in the earth should, in addition to special treatment, be surrounded by sandy and not humus soil. The insulating quality of wooden pipes will reduce the deterioration that comes with temperature change in the water (see below). The hydraulic efficiency of a wooden pipe is even somewhat greater than that of an iron or concrete pipe.<sup>11</sup> However, timber produced by modern forestry techniques is unsuitable for conduit work, since it has neither the same quality nor the durability of naturally grown wood.

It was not only the material within the pipe that Schauberger had in mind that determined the quality of water, but also its shape, which influenced the water's form of motion. Poor



A double spiral pipe. The pipe, preferably made of wood, has guiding edges of pure metal (e.g. copper or silver) attached to the inside. These force the water into a spiral motion, which should increase its quality, while at the same time considerably reducing the resistance in the pipe. (Austrian patent 13 82 96.)

quality could be improved with the use of a spiral of certain metal alloys in sections of the pipe system. Schauberger obtained a patent for this in 1934.

If a conducting trough is constructed in a naturally correct way with a form of double twist, as can be seen in freely-flowing brooks and rivers, then the water flowing in the trough is cool, fresh, full of energy and contains little gas. It sparkles with energy.

He also maintained that pathogenic bacteria in the water disappears with the use of these pipes.

Schauberger also thought that pressurization of water by pumping was harmful. It becomes deadened in the same way as water that passes through the turbines in power stations.<sup>12</sup>

Schauberger's proposals for the natural treatment of water were most controversial:

1) Water must be allowed to flow and mature in its own natural environment, which, amongst other things, presupposes a naturally-grown forest containing a great variety of species. Both single crop forestry and clear felling must cease.

2) All watercourses, from the little stream to the mature river, must have banks grown with trees and bushes to give natural shade.

3) Water installations (dams, power stations, etc.) must be sympathetic to water's needs and must not alter its natural forms of motion.

4) Water pipes, and other water transporting methods, must be so designed and of such material as to promote the preservation and development of water's particular biological quality.

## 4

# THE LIFE AND DEATH OF A FOREST

### The Natural and the Artificial Forest

Viktor Schauberger saw the forest as the prerequisite for healthy water, for a sound build-up of nutrition, and for maintaining a sound human culture. The definition of the term 'forest' was for Schauberger totally different from that used by modern commercial forestry. Schauberger's 'forest' is a naturally mixed forest, with many species coexisting in ecological harmony. He wrote in 1930:

A healthy forest, untouched by forestry technology, is made up of a strange mixture of vegetation. Alongside well-defined areas of noble trees, conditions of apparent chaos can be found, which can best be described as irregular confusion. People who are not aware of the importance of the balance in Nature, of which the forest is a part, want to clear areas of everything they do not consider to be useful. A great deal of sensitive concern and observation is necessary to begin to understand why Nature depends on an apparently chaotic disorder.

Modern forestry is completely unrelated to the forest's natural life, but, instead, upsets the whole balance of growth and creates chaos.

At one time the young sapling lived for decades in the healthy naturally-growing forest, uninfluenced by man and his technology, as part of the healthy growth protected by the mother trees and responding to the harmonious balance of temperature, humidity and light.

With the death of the mother trees, the saplings nearing maturity reach out to enjoy the direct light and warmth; the period of early growth, shown by the very narrow annual rings, is already over. The conditions of increased light and warmth accelerated the growth of the younger trees. It is important that the trunk of the tree remains protected from the direct influence of the sun except for the crown.

The commercial forester, aware of the effect of light-growth, envisaged a scientific method of achieving the same results. He drew up a new blueprint for growth, which, although in conflict with the natural order was, in his opinion, more effective. This new technique for forest development subjected the saplings to too much light and warmth and an excessive growth of the annual rings. These new methods have resulted in the system of laying waste whole areas of trees. As a consequence, certain forms of undergrowth have disappeared. This was thought to be of no disadvantage, because it avoided the necessity of draining this type of ground, which was of no value.

Inevitably, this new form of timber industry has left those trees standing which grow in the shade and thus are light sensitive, without the protection of the old trees vital for the natural rejuvenation processes. The centimetre-wide annual rings on fir trees, caused by the sudden denuding of other trees in the immediate vicinity, produce spongy wood of inferior quality, and after cutting it is evident from the rings that there is a loss of consistency. After the drying-out process, these spongy areas contract in a different way to healthy wood. Clearly, such wood should not be used for house construction. Since the introduction of scientific methods of arboriculture, the highest quality wood, the so-called 'resonance wood' has disappeared completely.

This slow growing wood differs from the fast produced by modern methods by the annual rings, which are difficult to distinguish. The organic structure of the natural wood shows a fine homogeneity. The wonderful timbre of the instruments made from this wood (which Stradivarius used for his famous violins) shows that it is not only healthier, but also has an almost unlimited durability. In comparing the properties of wood produced by modern forestry practice with this wood of supreme quality, one begins to realise the almost irretrievable loss we have suffered through blatant

misunderstanding of natural processes.

One might ask how can we continue to use a forestry technique, which after barely a century has been responsible for such catastrophic results, jeopardizing the future of all forests? A return to Nature and her processes is now becoming increasingly urgent. The forest is not a resource to be exploited, but a vital organic part of each culture, particularly in the mountain regions. Social deprivation becomes greater as a consequence of today's destruction of the forest.

What at first sight appeared as a great source of wealth, even a scientific breakthrough, has since been revealed as a calamity. Perhaps it is too late to avoid cultural decline as a result of our mistakes. It is clear that the extermination of a type of tree creates a gap in the ecological balance because its destruction can lead to the disappearance of another type. This has the effect of reducing the supply of deep ground water and its accompanying nutrients. The timber needs of our modern construction industry has led to the clear felling forestry economy with its forced replanting methods, resulting in a general decline in the quality of the timber.

The disturbance of the forest's natural balance has also far reaching consequences as the whole nutritional supply for the surrounding landscape is seriously damaged.

As a result of the wholesale clearance of forest areas and the dying out of certain types of wood, the soil starts to lose nutrients. The sun's rays are now able to reach the soil surface, causing it to warm up. This means that the ground water containing the essential nutrients is prevented from rising, and the vital salts are deposited below the root level of the saplings. The roots can no longer reach the nutritive layer deep in the soil. Soon the vegetation will diminish and the decline to desert waste begins.

Schauberger points out that a natural forest has an average temperature in the root zone of +9°C. This temperature must not increase if the natural growth process is to continue.<sup>13</sup>



### The Forest as the Landscape's Power Centre

Schauberger emphasized that the natural forest is a power centre for the whole of the surrounding landscape. He sees each tree as an energy-laden body in which a number of complicated processes occur, and which radiates energies into its immediate environment. These energies, 'horizontal ground rays', which also emanate from natural watercourses are not only a basis for vegetation growth, but also help build up ground water.

The damage caused by modern forest technology is so devastating, because this energy interchange cannot evolve as it does in a natural forest. When there is a variety of tree types and undergrowth, energy is created in the whole forest area.

Schauberger also stresses the important role of trees as mineral processors, building up metals and minerals, through biochemical reprocessing and biodynamic circulation:

Each green leaf or each needle is in effect a remarkably well-regulated metal factory. Its operation can be demonstrated experimentally. With the falling of the leaves or needles this supply of metals is scattered by the wind, and the more undergrowth there is, the greater is the dispersion of organic metal salts, which during the winter are pressed down hard by the snow.<sup>14</sup>

These metals play a large part in the build-up of the 'insulating skin' that Schauburger thought so important for the living processes within the soil. They form an extremely fine material lattice on the ground surface, a type of organic diffusion filter that separates the negatively-charged ground from the positively-charged atmosphere, a prerequisite for the growth process.

In this way, the trees build up important metals needed by plants and man, particularly in the form of trace elements. The watercourse flowing out of the natural forest carries with it some of these metals and deposits them in the surrounding environment. These trace elements contribute to the basic make-up of living water.

Besides its well-known ability to ameliorate the climate, the forest has also, according to Schauberger, a series of vitally important functions. He calls this the 'water's cradle', a vital factor in the provision of ground water. It produces trace elements and minerals, and it creates energy to make nutrition available.

### The Biological Consequences of the Destruction of Forests

Viktor Schauberger was certainly one of the first in the world to warn about man's encroachment of the natural forest. His bitterness and worry about the plundering of the forests that commenced after the First World War in Austria and Germany was expressed movingly in his speeches and writings. He entreated the authorities, in his attempt to awaken public opinion to this 'final sale' of the landscape. He wrote in 1928:

What can be said about the forest and its life? Unfortunately, my task is to write about its death. It is vital to alert those men who are still in a position to save the dying forests from the hands of those who have no feeling for, or awareness of Nature.

When a man dies the bells toll. When the forest dies and



Preparation of ground surface after felling by the Deman works in the Gallivare region (Pal-Nils Nilsson/Trio).

with it a whole people perishes, not a finger is lifted. It is known that for the death of a people the death of a forest has preceded it.

It may be hundreds of years before the forests return to the same standard as they were a few decades ago.

The general public is not aware of this slow decline of quality. People see forests everywhere and are deceived by statistics, which report that there is more timber produced per hectare today than previously. This merely conceals the real truth - that the quality of the remaining forests is declining at a frightening rate.

He had learned from bitter experience that the destruction of prime forests led also to the disappearance of water. In 1930 he wrote:

The finest memorial which could be given to a man, would be if he had the power and the will to end this senseless destruction of the timber forests. Tragically, the significance of the forest in relation to the life of a people is not appreciated in anyway. The forest is both the cradle and the haven for the divine water, if man destroys this haven then the water becomes resdess and of the greatest danger. Without the forest, no water, without water, no bread; without bread, no life.

One eventually comes to the conclusion that all today's failures derive from the mistakes which have taken place in the ground, in the water and in the air.

It is not a question of the forest remaining unutilized by man; but present methods make no sense and display a total ignorance of the laws of forest and water.

So long as a waterway is able itself to transport a log, the forester may use his axe. The deterioration of a waterway is a warning of danger, which, without exaggeration, threatens our very existence.

So long as the forester does not interfere with the natural order of the forest, the stream, which flows through most forests, will deliver almost without cost the fruit of the forest, namely, the timber.

If, on the other hand, the forester (in this case, a forest

destroyer) so operates that he changes the basic concepts under which the forest can thrive (by, for example, wholesale timber felling), then Nature will react to protect itself. The destruction of the forest leads immediately to the destruction of the waterways, the only profitable means of transport.

The wholesale destruction of forests continues and everywhere the consequences are frightening. The sinking of the ground water level, catastrophic flooding, irregularities of precipitation, agricultural decline, - all this and more are the consequences of mismanagement

Man has introduced the crudest possible methods of tampering with Nature's self-regulation without the remotest knowledge of how the natural order properly functions, or of the laws of natural movement. There is complete ignorance of the relationship of the forests and vegetation to fertile soil, which is in fact so similar to that of the skin to the human body. Man puts a tremendous effort into developing a forest, with the sole purpose of exploiting everything that it contains, even though its price is the total destruction of the forest environment

The most astonishing fact however, is that despite all the evidence of malpractice and economic decline, the irresponsible methods of forest treatment are still in use, which inevitably means that the forest as the basic requirement of every culture, is doomed to die ...

Even though this was written in the 1930s, it has a burning relevance for the 1980s.

At a time when millions of men are unemployed and miserable, the forests should be built up again with their waterways and storage lakes, so that the right balance is restored. Then the streams would once more supply healthy water. Such a scheme would get rid of idleness, which has already resulted in severing all relationships with Nature, and is literally the last hope for rehabilitation.

Schauberger sees the natural forest as the base for all the build-up of quality of water and nutrition. If the natural forest is destroyed, natural biological water is first affected, and,

then, the build-up of all other organic material. The biological quality of the nutrition is diminished, and people become more and more vulnerable to illnesses stemming from deficiency, circulatory diseases, and finally cancer. This, for Schauberger, was the logical consequence of the disruption of the forest's and the water's natural processes. Thus, the husbandry of the natural forest is a question of the survival of mankind:

Without a healthy forest, there can be no healthy water, no healthy blood. It follows from this that resulting from the present methods in forestry and water management, a deterioration of the fundamental quality of living takes place.

Schauberger had seen with his own eyes how the destruction of a forest region quickly led to biological changes. He relates one of his experiences: in Salzkammergut there was a spring considered to be poisonous. It had been enclosed to prevent grazing animals drinking from it. Schauberger came to the place in the company of an old gamekeeper, who warned him not to even approach the spring. Schauberger's dog, during an unguarded moment, drank from the water, and after an hour's lapse was still full of vigour. This prompted Schauberger to himself have a drink. At first he felt dizzy, but his sensation soon gave way to a noticeably refreshing feeling. He explains:

In the vicinity of the spring, traces of the presence of mountain goats were found. Surrounding the spring were mountain plants, which left an oily film on our mountain boots, which also could be seen on the surface of the crystal clear water.

Particularly striking was the blood-red colour of the Alpine roses. They surrounded the spring like a blood-red carpet. The leaves of these roses were as if sprayed with gold dust, which under the magnifying glass were found to be scales. There was undoubtedly a metallic content in these leaves.

The water here did not freeze during the severest winter, where, at this altitude, minus 30°C was not uncommon. The old hunters set their fox traps at such springs. They were covered with moss and thus not exposed to light. They

never froze, and kept the bait soft and odourless. The colder the external temperature, the warmer was the water. With an air temperature of  $-30^{\circ}\text{C}$ , the water temperature rose by  $10^{\circ}\text{C}$ , while on a particularly hot summer's day, it always approached the 'anomaly' temperature of  $+4^{\circ}\text{C}$ .

This took place just before the First World War. During the war, a depth of about 600 to 800 metres of forest was cut down. In the following spring, the spring already began to dry up. The oily film, mentioned above, completely disappeared. The water became stale and first the medicinal crops in the vicinity disappeared, then the short grass, of which the goats were particularly fond, died off.

Suddenly mange appeared in the area, which hitherto had been completely free of this disease, and gradually all the goats fell victim to it. Goats only survived if they did not stray from the springs or from where no wholesale timber clearance had taken place.

It was through systematic and thorough observations of this kind, that it can be shown that water cannot rise high and the inner growth cannot be stimulated, if the heavy metal matter begins to fall out because of the weakening of the earth's strength through excessive timber clearance.

Due to timber clearance, the metallic types of medicinal herbs can no longer thrive. The goats cannot regenerate their blood, through the crops which are necessary for them at these altitudes.

Schauberger meant that, in the long term, mankind would be affected by the uprooting of forests, in the same way as the mountain goats.

Viktor Schauberger's understanding of forests can be summarized as follows:

1) The forest must not only be thought of as a source of raw materials and a base for material well-being. At the same time as being a vital life source for water and the fertile mouldy soil, it also generates energy and builds up a vital environment even beyond its boundaries. It is the cradle of living water.

2) Without a natural forest, where many species of trees, bushes, and herbs are allowed to grow naturally and

inter-relate both above the ground and in the root areas, the full cycle of water will not be properly completed. This is necessary in order to bring up the salt nutrients and trace elements to fertilize the mouldy surface soil.

3) Without natural forests, water cannot flow from springs and streams when it has matured within the soil, and it cannot then continue to develop and fulfil its natural functions on the surface without the forest cover.

4) A natural forest is like a power centre that sends out energy in flowing water to the surrounding environment

5) The so-called rational forestation with its method of plantation, thinning and clearing, disturbs the complex relationships upon which the quality of all living organisms depend. Such forest exploitation becomes a threat to mankind itself, through its biological degenerative effect on water and foodstuffs.

### The Green Front

Viktor Schauburger, together with his engineering son Walter, founded an organization in Austria in 1951 to encourage the protection and regeneration of natural forests, and promote environmental protection in general. This organisation, The Green Front (Die Grune Front) found a wide appeal, and it was in no small measure due to its work that responsible authorities in Austria finally woke up to the fact that the destruction of forests must cease. At the Forestry Charter Meeting in London in 1951, the two pioneers of The Green Front were praised for their contributions.

## 5

# PERPETUAL MOTION

Panta rei  
(‘Everything is in motion’): Heraklitos

### The Two Forms of Motion

Though Schauburger was mainly engaged with building flotation installations until 1939, he also busied himself with many other problems. In addition to methods for regulating and regenerating water, he was fascinated by the production of useful forms of energy. Through observations and experiments he had become aware of the contrast between Nature's way of working, and man-made technology. He became more and more convinced that human technology is life-threatening and inhibits evolutionary growth. It is not just a question of air and water pollution. Though they were serious in themselves, he saw these absurdities as secondary problems. The fundamental question is: must there not be something basically wrong with the principles behind modern technology to have led to such serious consequences for forests, for water, for soil; and all life? A technology that produces such upheavals in Nature, or at very least achieves such poor results, must be altogether wrong. This question of performance had long troubled him. He said about this: ‘Our modern techniques behave like a farmer, who in the spring plants seven potatoes and in the autumn harvests one.’

The steam and internal combustion engines, upon which the modern world depends, do not even work to a 50 per cent efficiency. More than half of the energy used is destroyed or useless. Why do they perform so badly? Nature soon provided him with an answer to this question: ‘We use the wrong sort of motion.’



All he had perceived of the circulators' motion of water, of blood and of sap, now showed itself to have a universal application. There exist two forms of motion within Nature—one that breaks down, the other that builds up and refines; both always work in co-operation with one another.

The form of movement which creates, develops, purifies and grows is the hyperbolic spiral which externally is centripetal and internally moves towards the centre. We find it everywhere in Nature where growth or movement is taking place, in the spiralling of the nebulae in space, in the movement of our planetary system, in the natural flow of water, blood and sap. On the other hand, the destructive and dissolving form of movement is centrifugal in Nature—it forces the moving medium from the centre outwards towards the periphery in straight lines. The particles of the medium appear to be forced out from the centre. The medium is first weakened, then it dissolves and breaks up. Nature uses this action to disintegrate complexes which have lost their vivacity or have died. From the broken-down fragments, new co-ordinated forms, new identities can be created as a result of this concentrating form of movement. The centripetal, hyperbolic spiral movement is symptomatic of falling temperature, contraction, concentration. The centrifugal movement, on the other hand, is synonymous with rising temperature, heat, extension, expansion, explosion. In Nature, there is a continuous switch from one movement to the other, but if development is to occur, then the movement of growth must be predominant.<sup>15</sup>

### Death Technology or Biotechnology?

How is this relevant to our present technology? Schauberger states as a central theme of his teaching that the whole of our modern technology is built upon the idea of breaking down, through the medium of heat, combustion, explosion, expansion. It occurred to Schauberger that the poor results found in modern technology come from Nature's resistance to man's single-minded pursuit of destruction and decomposition. The overheating problem, air resistance, temperature and sound barriers, are evidence that man is on the wrong path.

Our technology points to death. It squanders coal and oil, which have more important ecological roles than to be burned in stupid machines with waste products which poison and pollute our whole environment

These are courageous opinions for Schauberger to have expressed as early as the 1930s. Today these views are not so strange to us, living in the middle of an environmental crisis, hearing daily about the harmful side-effects of technology's wastes. Schauberger's theme of the wrong motion is not yet acknowledged, and man continues to break Nature's laws, by following a destructive motion which brings chaos and anarchy to our world. If Schauberger's thought are correct, it is of little avail to try to develop exhaust filters, or sulphur-free oil, or absolutely safe nuclear power stations. None of these can eliminate the destructive influence on all living things,



Water pollution through the release of industrial waste into the River Fyris (Stig T. Karlsson).

brought about by the technical principle used in explosive power, or through the splitting of the atom.

Schauberger wanted to demonstrate another way - a biotechnological way - of producing energy, a method of using the cycloid form of motion for the positive production of energy from air and water. The splitting of the atom and the development of nuclear energy heralds the commitment of our society's future to total destruction. In his last years Schauburger tried to awaken us to impending catastrophe.

[Our object] must therefore be to publicize widely and above all to put before the Government the fact that the Einstein theory of energy gain through the splitting of the atom is an offence against Nature, and that one can make use of atomic power through the biotechnology of implosion.

Schauberger strove to duplicate Nature's implosion through the design of his 'implosion machines', which he claimed were unique in that they needed no fuel.

In the case of a power generator, nine times as much energy in the form of fuel is required in the conversion to electricity or other kind of output. This system of plundering the resources of the earth, which has resulted in the murderous scramble for the earth's energy, is based upon the explosion motor, which operates centrifugally. The implosion motor, however, is centripetally operated. It produces its own driving source through the diamagnetic use of water and air. It does not require any other fuel such as coal, oil, uranium or energy derived from atom splitting, since it can produce its own energy (atomic power) by biological means in unlimited amounts - almost without cost. It has been overlooked that energy is also bipolar and appears freely as part of the motion of the earth's medium - water and air, which have the effect of reviving energy. The type of energy can be either bio-electrical, that is destructive, or biomagnetic, ie. levitative.

### Implosion and Diamagnetism

Schauberger tried to explain the natural phenomena that gave rise to the understanding of implosion power and its associated

'diamagnetism',<sup>16</sup> and their opposites in the following way.

Let us begin with the most elementary aspect: the basic elements hydrogen and oxygen, the chief components of water and air, oppose each other in the following manner

Hydrogen (H) becomes active by cooling and combines with the passive oxygen (O) to produce a concentrated form of energy of lift and growth, 'biological magnetism'. This lifting power of diamagnetism operates in opposition to gravitation. In the case of hydrogen gas, which was used to fill the Zeppelins, the lifting force amounted to 2km per second. Above all the 'play of nature' turns on these two forces. Thus the biological magnetic or levitation tendency of the plant as it is attracted towards the light, influences its growth, while simultaneously increasing its weight and consequently the force of gravity. As iron and steel are attracted by magnetism so the elements hydrogen and oxygen, essential for sustaining life, as also are the highly valuable trace elements - the 'chromosomes' of water and air - are attracted by diamagnetism. It is the opposite to electricity. Stale water is reactivated and increased in volume through biological magnetism.<sup>17</sup>

Oxygen (O) is activated by heat (every oven burns better by adding oxygen!) and combines with the then passive hydrogen (H) to produce a dispersing energy which results in decomposition. This occurs with every explosion. It is produced whenever pressure, heating and explosion are used and is particularly found in weapon design and atom splitting, whether for war or peaceful purposes.

Heat is the lowest form of water decomposing energy. As the molecules are redistributed, heat is generated (the predominating H combines with O, instead of O with H, as would be necessary for organic growth), then the water (as in the sap of plants and blood) becomes stale, lacking in higher quality matter (which burns up due to the excess of oxygen). Decomposition sets in, cancer develops and at the same time the decomposing element traces and pathogenic bacteria multiply, overcoming the natural restorative processes of higher forms of organic life.

The molecular build-up of cancer growth, causing fever, is stimulated by impulses of a physical, chemical and a psychic nature. All energy (heat, electricity, magnetism, or

diamagnetism) is the result of bi-polar action, originating in mutual attraction. The whole universe is composed of living organisms, which with little effort can be forced into a straight-jacket by the human operation of using hammer, tongs, hatchet, screws or explosives, and with even less effort can be made to produce in abundance. It is not pressure, but attraction that the 'eternal woman' employs; so we can talk of negative pressure, or the negative electricity of diamagnetism.

The invention of the 'suction spiral' and the 'suction turbine' is based on the same principle as the twisting action of rivers, which is caused by the movement and rotation of the earth. In the river, the water is thrown hither and thither, spins, reels on itself, as the rope in the hands of the ropemaker. It forms whirlpools, eddies, spiral-forming currents, where the water rotates on its own axis and condenses. Vacuums are formed, creating a negative pressure, which affect the breathing of the water through suction, and this generates a cool air stream. This is the 'falling temperature phenomenon', which physics has not considered to be mechanically produced. It is, however, produced in the suction turbine, which rediscovers an ancient principle.

The problem is solved. We are now in a position to convert the present 'fire technology', one of destruction, into a technique of life, to convert explosion motors into implosive.

Schauberger does not limit these energy effects to a local scale, but insists they apply to all of life, even on a grand scale.

If this decomposing energy, which in Nature is a retarding force, is produced by centrifugal force mechanically, in uncompromising opposition to Nature, then cancer is likely to develop. Eventually this may have the effect of making us cease trying to manipulate Nature, and in the long run increasing our chances of survival.

For Schauburger, then, it is the reliance of technology on the principle of explosion that is the universal problem. A change of attitude, leading to the development of constructive energy

generation, would open immense possibilities for mankind to influence the creative evolution of Nature.

If, on the other hand, human existence were to develop natural centripetal movement in air and water, negative pressure could be activated to release certain trapped forms of energy. The trace elements and 'chromosomes' in the water and air provide atomic decomposing energy from previous higher forms of life in which they were contained, and which merely await an impulse to be revitalised. If this were to happen, the whole process of growth would be stimulated and revitalized.<sup>18</sup>

## 6

# IMPLOSION AND BIOSYNTHESIS

### Schauberger's Understanding of the Energy Question

The conventional methods of energy production are all associated with destruction, producing obvious side-effects of waste, but also more subtle effects on organic life. Schauburger was especially critical of the use of fossil fuels, coal and oil, which he considered essential in their natural state for the build up of healthy water. When the earth's coal and oil resources are plundered, it leads to the disappearance of water. Coal and oil contain high-value trace elements from earlier life forms. Nuclear power, the splitting of the atom, he saw as a watershed of life, between its highest stage and its final misery.<sup>42</sup>

Schauberger was also critical of hydro-electric power stations, though their damaging effects are not so obvious. The natural structure of the water is broken down as it passes through the turbines; the steel of the turbine has a detrimental effect on the water, which is then forced into an unnatural form of motion. He used to tell how mountain farmers in Austria were unhappy irrigating their fields with water that had gone through the power stations' turbines, as it had become impoverished.

The ringleader in this insane merry-go-round is the energy technologist. Coal, the bread of the earth, and water, the blood of the earth, when found in sufficient quantities, are the providers of energy. For the first few decades, man basked in this accidentally-found richness; but already the effectiveness of the water providing the power has been lost, precipitating a destructive cycle on the earth. As man toils with tremendous energy, so his misery grows.

## New Motor Fuel Through Biosynthesis

One alternative to explosive technology that Schauberger investigated was a new motor fuel that could be used in ordinary combustion engines, but without the dangerous waste products.

He had discovered that water in a constructive hyperbolic motion had the ability to create different forms of synthesis. He redesigned the apparatus he had constructed for his living water experiments, to bring about the synthesis of hydrocarbons suitable for fuel. He felt that it should be possible from low quality raw materials to create a product with a high energy content

He was reputed to have obtained traces of a petroleum-like product in his apparatus. He refers in his writings to 'highly potent water' that he could now manufacture in his 'repulsator'.

If water is sprayed into a cylinder and a quantity of natural oxygen is added, a light heat pressure created by a descending piston is sufficient to transform the highly potent water into a gas.

The exhaust gas from this 'highly potent water' was very similar to ordinary air, and therefore poison-free. However, there were great problems with these experiments, and he failed to achieve consistent results, even with careful controls.<sup>43</sup>

## Trout Turbine

Schauberger turned his attention to constructing a machine designed to produce energy directly from air and water. He worked in 1931-32 with Dr Winter, an engineer from Vienna. However, the results they achieved had only curiosity value. He therefore returned to the question of trout in mountain streams, and how they could apparently harness energy from the water. Finally, he was convinced that he had solved the problem. The trout takes in water through its mouth, and expels it through its gills. By trimming the almost microscopic leading edges of the gills, the water is given a strong inrushing movement (analogous to the hyperbolic centripetal spiral movement). Through the simultaneous influence of certain trace elements found within the gills, the water is changed catalytically into what Schauburger termed 'juvenile' water,



which has new physical characteristics. The water that flows from the gills along the streamlined body of the fish reacts forcefully with the surrounding water because of its different make-up. This results in a secondary system of water circulation being formed which resists the water's natural flow in the stream. By regulating this pressure with the gills, the trout can either stand stock still or move lightning fast against the stream.

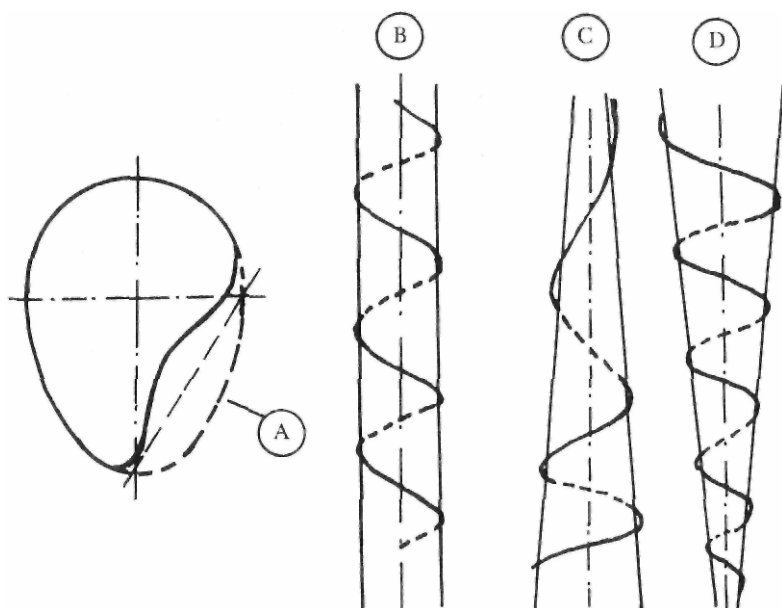
He found a comparable example in the wings of birds. When air flows through the feathers during flight, strong counter circulations of updraft are formed, carrying the bird forward and upward. Schauberger used to say that birds do not fly, they are flown, and fish do not swim, they are swum. These phenomena he now wished to reproduce in his machines.<sup>44</sup>

When he stopped working with Steinhard, he took no new employment, but concentrated solely on his experiments and the publication of his warnings of the dangers of technological development. He received considerable publicity in the 1930s. The log flumes, the production of living water', and his tough stance on technology awoke both interest and resistance. There was no lack of support for those who wanted to see him immobilized.

Under very difficult circumstances he now tried to solve the problems of making a machine that copied the trout phenomena. He first called it the 'trout turbine', but later renamed it the 'implosion' machine.

The principle of this machine was that elements such as air and water should be directed through the spiral shaped pipes of a particular material, and with specially shaped cross section. The introduced element should then, at a certain count of revolutions, be directed into a corkscrew motion, at which point the energy should be released. Schauberger presumably counted on a certain reaction at an atomic level, something akin to hydro-fusion experiments all over the world. However, instead of violently compressing atoms in hydrogen gas to create helium and a release of energy, Schauberger wanted to 'screw' together his elements without resistance, in the same way as he perceived it to happen in Nature.

It is known that he built two such machines, one of which was destroyed. According to hearsay, very strong energy was



Pipes for liquids and gas. This pipe was also to be used in the 'Trout turbine'. Its cross section is shown in (A). (B), (C) and (D) are different designs of spiral pipe systems, showing the pipe to be wound around cylindrical and conical objects. (From Austrian patent no. 19 66 80).

suddenly released, causing the machine to be torn away from its foundations, to be smashed against the ceiling. He was not able to control the energy (see above).

Since he did not confide the method of the construction to anyone else, and from all accounts experimented alone, the apparatus and the details of these experiments are not known. The picture showing him standing beside such a machine is probably a variation he called the 'domestic power station', in which the small output of an electric motor was multiplied many times in a 'trout turbine', and used to drive a larger electric generator. The machine was constructed so that a conical-shaped object was set in motion within a vacuum-sealed container. A system of Schaubberger's special pipes was wound around the cone-shaped object, that tapered downwards. Water entered from above and could flow through the pipes when the cone-shaped object was rotated by a small motor. Due to the pipe's shape and spiral course, the water

was 'screwed' towards the centre of the pipe (see p. 91) and sprayed out through oudets in the lower parts of the pipe, at a tremendous velocity and under great pressure. This was directed onto a turbine wheel, which powered the generator. The special feature of this apparatus was the amplification of the input energy, and the fact that the water, as it poured out of the oudets, rose to the top of the system, to be recirculated. Schauberger claimed that the water rose because it was so strongly charged with biological magnetism, negating gravity.

Schauberger also developed an aircraft engine which would work on the same principles, but using air as the fuel source. It would suck in air and convert it to fuel while flying, and at the same time create a vacuum in front of itself in which it could move continuously without resistance.

Did these machines really work, or were they just a fantasy? The evidence of the 'domestic power station' is inconclusive. According to Schauberger himself, some of his models worked, at least partially. Not even his closest associates were allowed to be present at the trials. Bauer concluded from his research that the 'domestic power station' could very possibly have worked.<sup>19</sup>

The evidence is somewhat clearer about the aircraft engines. By the beginning of World War II a model appears to have had successful trials. Aloys Kokaly tells us that at the beginning of the war he had started to work for Schauberger who was developing 'flying objects' driven by 'biotechnical' means. Kokaly produced certain parts for these engines in Germany that were hard to obtain in Austria, and took them to Schauberger, who was then living in Vienna. Parts also had to be delivered to a firm called Kerd in Vienna, working 'on higher authority' in association with Schauberger on this project. When Kokaly arrived at the firm with the parts he encountered some hostility. When he was finally received by the chief of Kerd, he was told bitterly: 'This must be prepared for Mr Schauberger on orders from higher authority, but when it's finished, it's going out on the street, because on an earlier test of one of these strange contraptions, it went right through the roof of the factory.'<sup>20</sup>

In 1945 Schauberger wrote that the working designs for an engine for aircraft and submarines were now finished, and that two different models could be built. Further tests were carried out during World War II (see p. 93).

## A MEETING WITH HITLER

### Summoned to the Chancellery

An industrial magnate, Herr Roselius from Bremen, had heard about Schauberger's 'living water' in 1934, and had contacted him to obtain the rights for Germany. It was through Roselius that Hitler came to hear of the Austrian with his original ideas about technology, and his strange inventions.

Austria was not at that time annexed, and the atmosphere between the two governments was somewhat strained. One day the German embassy requested that one named Viktor Schauberger should present himself in order to receive a visa to go for an audience with Hitler. Schauberger came to meet Hitler who showed himself to be well informed about his earlier work, and requested a thorough explanation of his ideas and his scientific research. Schauberger had requested that the meeting should be just between the two of them; this had been agreed, but as he entered Hitler's study, who should be present but ministerial director Wiluhn, the senior official of the Kaiser Wilhelm Institute, with whom Schauberger had had a bitter argument. Schauberger was, however, allowed to speak without interruption for one hour. He described the fallacies of the technologists and what he considered to be misconceptions in Hitler's four-year plan.

When he had finished, Hitler asked: 'What would you put in place of the generators and methods we have today?' Schauberger answered: 'Give me facilities and staff, and the materials I shall need, and in a few months you will see my methods of producing energy. Then you can decide for yourself which is the most efficient method with the best potential.' Hitler: 'What would be the source of fuel for your generators?'

Schauberger: 'Water and air; they contain all the power we need.' Hitler now pushed a button, and the state secretary Keppler entered. Hitler told him: 'Give this Austrian, who has ideas that interest me, all he needs to prove that he is right' He then bade Schauburger a friendly farewell, who was shown out by Keppler.

As soon as Schauburger was out of the door, Wiluhn came up to him, full of indignation. He accused Schauburger of having ingratiated his way into Hitler's confidence, only to put idiotic ideas into his head. After a stormy exchange, Schauburger returned to his hotel. There he received another summons from the Chancellery, but he chose instead to return directly to Austria. For a long time he remained upset that he had had to go all the way to Berlin just to be 'abused by that underling Wiluhn'.

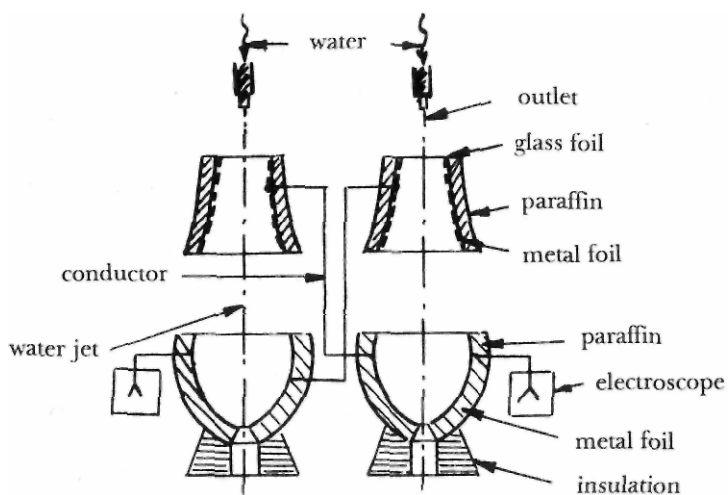
What he and Hitler had agreed was not carried out, but several years later it was clear that Schauburger had not been forgotten in the Third Reich.

### Electricity from Water

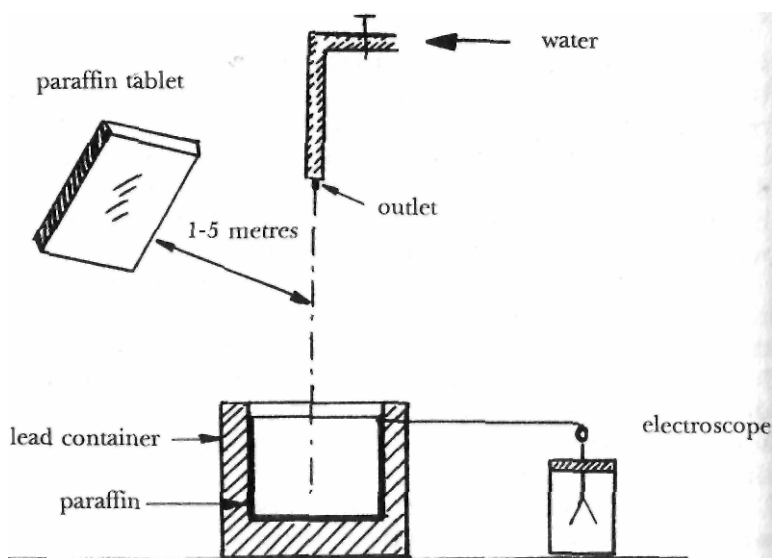
In 1938 Germany annexed Austria. Soon afterwards Schauburger received notice from Julius Streicher that all possible requests should be granted him on Hitler's orders. He was to be given 10 million marks to plan the forest logging and flotation structures in Bavaria, North Austria and in Bohemia. Furthermore, Professor Kotschau's laboratory in Nurnberg was to be made available for his research.

Schauberger sent a message to his son Walter, who had completed his examinations for a diploma in engineering at the technical college in Dresden, and asked him to come to Nurnberg to help with the experiments. Walter had found it difficult to accept all his father's theories, and had remained somewhat sceptical. In time, however, he became convinced that his father was right.

They continued the experiments that Schauburger had worked on earlier with Dr Winter to try to extract electrical energy directly from a water flow. At first they tried with large jets of water at high pressure from wide outlets, but without results. Walter Schauburger then reversed the conditions, using very fine outlets and low pressure and the electrical phenomena started to occur, the charge being able to be



Nurnberg experiment (from Implosion No. 6).



The simple waterflow test. When the paraffin tablet is pointed towards the flow the electroscope gives a reading.

amplified to 50,000 volts. Julius Streicher was very impressed by this and sent for a physicist from the technical college to explain the phenomena. He began by searching for the electrical leads in the apparatus; when he could not find them he angrily asked Walter Schauberger where he had hidden them. That the water itself could produce such a high charge was unbelievable; but when he finally accepted that there was no trickery, he admitted that he could not explain the phenomena. These experiments with water flow did not yield any practical results at the time.<sup>21</sup>



Viktor Schauberger with a model of his domestic power station (1955).

## WARTIME EXPERIENCES

### Schauberger is Taken to a Mental Hospital

When the war interrupted the experiments in Nurnberg, Schauburger returned to Austria, and at the same time his son was called up. Some time later he was ordered to attend a physical examination, as he was soon to reach pensionable age. However, it looked as though an engineering and architectural association was behind this demand for a check-up. Without the least suspicion he presented himself at the appointed place, but was taken to another clinic for a 'special examination'. To his shock and dismay he was unexpectedly interviewed in a mental hospital. He understood that his enemies wished to render him harmless. He told himself that his only chance to get out was to remain calm and collected, and not to display the abrasive side of his nature. After a long wait he was examined by a young doctor who, after a short examination, realized that his patient was perfectly sane. He called his superior, Professor Fotzl, who immediately had Schauburger removed from the department for serious mental cases where he had been placed. After passing a test establishing that he was perfectly normal, he was brought to Professor Wagner-Jauregg, who further tested him and then released him as perfectly normal and 'highly intelligent'. Professor Fotzl was unable to discover who had referred Schauburger to his psychiatric clinic. No documents about the case ever came to light.<sup>45</sup>

### At the Mauthausen Concentration Camp

After a while Schauburger received his call-up. It was now 1943, and even older men were being drafted. He was



eventually appointed the commandant of a parachute company in Italy,<sup>46</sup> but after a short stay, orders came from Himmler that he should present himself at the S.S. college at Vienna-Rosenhugel. When he arrived, he was taken to the concentration camp at Mauthausen, where he was to contact the S.S. standartenfuhrer (standards leader) Zeireis, who told him he had a personal greeting from Himmler. 'We have considered your scientific research and think there is something in it. You can now either choose to take charge of a scientific team of technicians and physicians from among the prisoners, to develop machines utilizing the energy you have discovered, or you will be hanged.'

Schauberger understandably chose the first (insisting that his helpers must no longer be regarded as prisoners) and so an intensive period of study began. After the S.S. college, where the research was taking place, was bombed, Schauburger and his team were transferred to Leonstein, near Linz. The project they initiated there was a 'flying saucer' powered by a 'trout turbine'. Schauburger was clear about the principle of construction.

If water or air is rotated into a twisting form of oscillation known as 'colloidal', a build up of energy results, which, with immense power, can cause levitation. This form of movement is able to carry with it its own means of power generation. This principle leads logically to its application in the design of the ideal airplane or submarine... requiring almost no motive power.

The results of the research were surprising. It was both a success and a failure. Viktor Schauburger later explained this briefly in a letter to the West German defence minister Strauss on 28th February 1956:

I preferred the first alternative, and about a year later, the first 'flying saucer' rose unexpectedly, at the first attempt, to the ceiling, and then was wrecked. A few days later an American group appeared, who seemed to understand what was happening, and seized everything. Then, after a very thorough investigation by a high-ranking officer, I was taken in protective custody, and guarded by no less than six policemen for about six months. An important part of the

apparatus was found in my apartment by the Russians.

In another context he said:

The apparatus functioned at the first attempt... and rose upwards, trailing a blue-green, and then a silver coloured glow.

The Russians blew up Schauberger's apartment when they left it, presumably to prevent anyone else from discovering any information that they had overlooked. Several of his associate scientists had been Russian prisoners of war who subsequently returned to the Soviet Union. When the Russians made their great advance in space rocketry, the story circulated that they had made use of Schauberger's ideas of construction.

It has been said that the 'flying saucer' destroyed in Leonstein had a diameter of 1.5 metres, weighed 135 kilos, and was started by an electric motor of 1/20 horsepower. It had a trout turbine to supply the energy for lift off.

All those who had worked on these tests were interviewed like Schauberger. In 1956 he wrote:

At the end of the war, I was confined for nearly a year by the American forces of occupation because of my knowledge of atomic energy production. After my release, under the threat of re-arrest, I was forbidden to take up again any research in the atomic energy field, although it would have been concerned with new aspects of this technology.

After the signing of the Far East Peace Treaty, I did take up my work once again. Since by the end of the war I had lost all my assets, work proceeded slowly. I refused any foreign financial aids, which is the reason for the delay of the working models, but once the patents were granted, this matter was resolved.

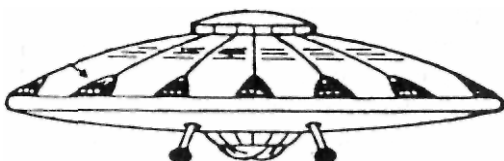
After his release Viktor Schauberger moved to Linz, where his research was constantly hampered by lack of resources. He used to say 'with a penknife and a few pennies in the pocket, one cannot accomplish much'.



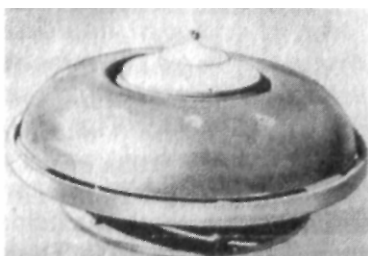
The 'Schriever-Habermohl' flying disc developed between 1943 and 1945. In 1944, climbing vertically, it reached a height of 12 km in 3.12 minutes and a horizontal flying speed of 2000 km/h.



The first test-model developed between 1941 and 1942. This had the same flight properties as that in fig. (a), but something was wrong with the controls.



The 'Ballenzo-Schriever-Miethe Disc'. The retractable undercarriage legs terminated in inflatable rubber cushions. It carried a crew of three.



Schauburger's models of 'flying saucers'.

## BIOLOGICAL TECHNIQUES IN AGRICULTURE

### Contemporary Technology's Destruction of Agriculture

After World War II Schauberger concentrated a lot on agricultural problems. Despite his meagre resources he thought it possible to make a contribution in this area. The contemporary destruction of forests and water must ultimately be harmful to man, he realized, particularly in the way it prevents the building up of natural nutrition, a vital process to soil fertility.

The farmers work hand in hand with our foresters. The blood of the earth continuously weakens, and the productivity of the soil decreases. There is fortunately an awareness of the necessity of fertilizing, but now the chemist enters the scene and scatters his salts.

After only a few years there is evidence that soil treated with artificial fertilizer is seen reduced to dross. It is another example of man working against Nature and happily obstructing the last remaining source of nutrition, the capillary system of the soil. The field which had previously given the farmer an abundance of produce had begun to deteriorate. He instinctively sought the solution by using his deep plough, thus destroying the system of capillaries in the soil. Now the same thing is happening in our forests. Externally everything seems to ripen and thrive, but it is only a facade. The ripening has emerged from putrid ground; the fruits of decay are cancer.

The strength of the corn is weakened, the meadows are covered in moss, the fields are bare of produce - only work and its cost increase. The end is the loss of the clod of earth, the loss of the homestead.

Schauberger knew what he was talking about. He had lived his whole life amongst farmers on the Alpine slopes and in the valleys in Steiermark and Salzburg. He had seen the conditions of their fields and harvests when the prime forests still existed, and the watercourses remained undisturbed. He had later seen what happened after the onset of forest clearance and the consequent degradation of water. He had carefully studied the old farmers' traditional methods and the results they achieved, and then compared these with the new, so-called rational methods of agriculture that had since spread. The comparison did not flatter the modern methods.

For Schauburger the growth process revolves around a sequence of the charging and discharging of energy. Growth he saw as a balancing of the charges, where, amongst other things, the difference of electrical voltage between the atmosphere and the earth was of fundamental importance. If the charge is to be utilized, however, there must be some form of insulation between the two voltage polarities, or else there is only a wasteful short circuit.<sup>22</sup> Schauburger talks a lot about this insulation, this 'skin' that the earth must have around itself. He described its form, how it is being diminished, and how it can be built up again. One golden rule is that the soil must not be stripped bare; it must always have a covering of vegetation or something else.<sup>23</sup>

The quality of water is also crucially important for the growth process. If the forest the source of good water, is ruined, and the watercourses become dirty relics, then the water can no longer build up the important ground voltage. This encourages the formation of pathogens, disease producing parasitic bacteria that lower the quality of the produce that can still be grown.

### Old Farming Traditions Were Friendly to Life

Schauberger often reminded himself of traditional methods used by the old farmers to increase their harvests. For example, at certain times they would add finely-chopped coniferous branches to the soil, adding valuable trace elements without realizing it.

The supposedly simple farmers, who include the high forest farmers of Muhlviertel [a region in the Bavarian

forests] grew, for about forty years, the best potatoes and the heaviest oats. If you asked a farmer how this was achieved he would, with an artful smile, promptly reply that you must always remain true to the very ancient beliefs of the land and avoid any kind of instruction, if you want to be fortunate in agriculture.

Schauberger liked to mix with the old farmers, and they with him. In an essay, *Natural Farming*, he tells us in detail of a visit he made to such an old farmer, whom the whole community considered eccentric, even though none of his neighbours could boast such good harvests.

This farmer ploughed in a different way. He also harrowed differently and sowed at times other than those of other farmers. His method of treating crops was also different. In short, he carried out each and every farm process in a unique way. He never went to church; this he would have taken particularly amiss. He was never seen drinking beer with others. Nobody asked him for advice and he never tolerated any argument from his employees. Those who did not immediately obey him could immediately pack up their goods and chattels and go. Despite this attitude it was seldom that he lost an employee. It was only with his grown son, who attended an agricultural college, and who always thought he knew better, that there was any tension.

So it happened one day, as darkness was setting in, I came to the farmer's house. I wanted to have a short chat with him. In the courtyard I met the somewhat unsympathetic son and enquired after his father. 'He is in the back of the house - the old one', he answered with an unfriendly gesture. 'Shout loud enough and he will come'. I went where he pointed, across the threshing floor, and eventually found the old farmer. He was standing in front of a wooden barrel as large as three or four buckets, singing a quaint song. At the same time, he was stirring the contents of the barrel with a large wooden spoon. It was not really a song he was singing, but rather a musical scale rich in tone, ranging from falsetto to double bass. This he did as he bent over the barrel, singing loudly down into it. As he went up the scale, so he rotated the spoon in an anti-clockwise motion. When his voice deepened, so he changed the direction of the

rotation of the spoon.<sup>47</sup> I thought to myself that there must be a reason for all this. The farmer did not hear me coming, and after I had watched him for a considerable time, I was curious as to what he was stirring. Unnoticed, I came up to the barrel and glanced inside; there was nothing there except clear water. Eventually the old man noticed me, nodded in reply to my greeting and continued to stir without pause.

My glance alternated between the farmer and the contents of the barrel. With a flick of his hand, he would throw bits of loamy soil into the barrel as he continued to stir the liquid first to the right and then to the left. At the same time he sang quite loudly and not altogether pleasantly into the open container.

'Well', I thought, 'Nothing lasts forever'. At last the old man took the giant spoon - it really could be described as a small oar - out of the barrel and muttered, 'So, it's ready for fermenting.'

I nodded as if to indicate that everything was perfectly clear to me. I nodded again, when the farmer asked me whether I had a thirst and would like a grog of fresh apple juice. So, after the old man had carefully wiped his wet hands on his apron, we went into the house. While he fetched the cool apple juice from the cellar, I walked into the best room. 'Now let it taste good'. With these words he slid the blue-flowered tankard of juice across to me, inviting me to join him.

'Now do you think, as others do, that I am mad?' asked the farmer. 'You know what you want', I replied. In the course of our conversation I gradually referred to the series of actions he had just performed and I had noted. Clay mixed in cool water with air-evacuated carbonic acid, which



The heart of a cockchafer, a rhythmical sequence of chambers (after Schmeil).

is then stirred in the right way, will take on a neutral voltage (similar to the effect of well-kneaded loam wrapped in aluminum sheeting).

This neutrally charged water was then sprinkled over newly harrowed and sown fields. The harrow had wooden and not iron teeth. The water eventually evaporated leaving exceedingly fine crystals which carried a negative charge. These crystals attracted rays from all directions and then gave them out again.<sup>24</sup>

Between the geosphere and the atmosphere, a fine membrane, violet in colour, builds up. This skin, acting like a filter, allows rays of the highest value to enter and leave the earth. The down-to-earth farmer called this filter 'the virgin hymen'.<sup>48</sup> Such a valuable diffusion effect could be obtained, that during the driest part of the year, the soil remained cool and moist. By this means, the seed zone between the geosphere and the atmosphere remains at a practically constant temperature of +4°C. At this temperature the crop structure is at its highest potential, while at the same time fructification is relatively passive.<sup>25</sup> As a result of this simple caring for the surface breathing of the earth, an increase in crops of some 30% was obtained compared with where it was not carried out. In the old days this natural breathing action was called 'clay singing'.

Another old tradition was to plough furrows at right angles to the path of the sun- so-called 'sun ploughing'.<sup>26</sup> Schauberger considered that the modern farmer did not care enough about traditions. For him, time is money - he ploughs the largest area in the shortest time. The old-time farmer thought differently. He was closer to Nature, and relative time and method had for him always been constructive conceptions; he continued to trust, even in secret if necessary, in the old ways.

The special lay-out of the old granary and the special shovelling action used for the grain, first in one direction and then in another with a wooden shovel of defined dimensions as practiced by the old farmer had a deep significance.

Schauberger discovered that there was a factual basis for much of what the old farmer said. For example, it was shown that fields used for cattle grazing, that had the grass cut by



hand scythes, were much more fertile and rich in different grass species and especially health-giving herbs, than when the cutting had been done with machines. Furthermore, it was shown to be especially beneficial to cut grass with hand scythes sharpened by hammering, instead of being ground in the normal way. The old farmers of Estonia used this method of sharpening. Schauberger thought that if the hammering were done against the support of hardwood timber, instead of, for example, iron, the mechanical charges generated by the hammering formed an energy within the scythe that was released during harvesting, giving the roots and plants energy for growth. It was important not to allow the hammered scythe to lie out in the sun, otherwise the charge would dissipate and it would go 'flat'.

The positive influence on growth occurring during cattle grazing, or with the use of the hand scythe, was due to the fact that the plants were torn or cut off in a way that closed the cut surface of the remaining stalk. A cutting machine, however, damaged the stalk so that the cut remained open for a long time, and it was through this open wound that the growth energy escaped uselessly into the atmosphere. The same theme lay behind the old forester's opinion, with which Schauberger agreed - that it was better for a forest if the trees were felled with an axe rather than a saw. The latter left the stumps exposed and damaged.

### Iron or Copper Equipment in Farming

In the 1930 s Schauberger was invited by King Boris of Bulgaria to examine the reasons for the great decline in that country's farming production. During his trip through the countryside he noticed that in the areas populated by the Turks, the harvests were more plentiful than elsewhere. It was here that the old wooden plough was still used. The rest of the country had replaced these with modern iron ploughs imported from Germany as part of a general modernizing of Bulgarian agriculture. The first steam ploughs had also been introduced. Schauberger drew the logical conclusion that the reduced cropping was a consequence of the introduction of iron ploughs, but it was not until later that he developed his theory of the detrimental effect of iron machinery on agriculture. His work with water jets gave him a new perspective on the

problem (see p. 89). It was shown that if a small amount of rust was added to the water in these experiments, no charge developed; the water became 'empty'. He abstracted this finding to the use of iron ploughs and thought their effect on harvest yields must relate to this. When the iron plough moves through the soil, it becomes warm, and the disturbed soil is covered with a fine dust of iron particles that quickly rust. He had previously noticed that iron-rich ground was dry, and that the turbines in power stations 'discharged' water.

The conclusion of all these observations was that iron had a detrimental effect on the water characteristics within the soil; it expelled the water and 'drained' it of its power. When the steam plough, and later the tractor plough, were introduced, the situation worsened as a result of the increased speed with which the blades moved through the soil. Walter Schauburger has said that water disappears from fields that have been ploughed in this way, for straightforward physical reasons; the iron plough's rapid passage through the soil cuts through the fields magnetic lines of energy, causing an electrical current to occur in the same way that a coil in an electric generator rotates in a magnetic field. This, in turn, leads to an electrolysis in the soil which separates the water into oxygen and hydrogen. The electrolysis also damages the microscopic life in the soil and this leads to an even higher temperature occurring in addition to the iron blades' friction with the soil. It is especially with iron that these phenomena occur. With ploughs of wood, copper and other so-called 'biologically magnetic' materials, the soil's magnetic field is not disturbed.

The conclusion that Schauburger drew from these observations, was that another material than iron should be used for farming equipment. His attention focused on copper. Copper-rich soils retained their ground moisture well, and so he began to experiment with copper ploughs as well as other equipment made from copper. To begin with he merely covered an iron plough's cutting surface with copper sheeting and made tests with this. The tests took place under controlled conditions, dividing the field up into segments, some of which were ploughed with the prevailing iron machinery and some with the adapted copper machinery. The results proved very favourable to the copper, which showed a 17-35 per cent increase in harvest. A large firm, Farmleiten - Gut Heuberg, near Salzburg, showed an increase of 50 per cent On a hill

farm outside Kitzbühl tests showed an increase in the potato crop of 12.5 times the quantity sown. Throughout there was an increase in quantity, but also a marked increase in quality. The baking potential<sup>50</sup> of corn was increased, and potatoes were not attacked by the Colorado beetle, though neighbouring potato fields ploughed in the more usual way were still attacked, and the nitrogen requirements of the soil were reduced. During 1951-52 controlled tests with the copper plough were made by the Farming Chemical Test Station in Linz. The tests concerned the cultivation of oats, wheat, kohlrabbi and onions. Certain sections were worked only with iron machinery, others with iron machinery and added copper sulphate, and a third area with only copper machinery. In certain tests the copper sulphate was exchanged with pure copper dust. A significant increase was observed in these tests also.<sup>27</sup>

Rumours of these successes spread to farmers around Salzburg where many of the tests had taken place, and they started to call the copper-wonder 'the golden plough'. It was manufactured in large quantities but soon considerable opposition arose from an unexpected quarter.

In 1948 Viktor Schauburger had signed a contract with a company in Salzburg for the production of a large number of ploughs. Then suddenly one day he was visited by a high official from Salzburg's treasury office. The latter arrived in an elegant car, and the following ensued: the treasury director: 'There has been a rumour that the Salzburg town corporation has carried out successful tests with your ploughs, and, naturally, this is of interest But now I must ask you face to face - what is is worth to me, if I support you?'

Schauburger said: 'I don't understand what you mean. You are from the treasury, you have nothing to do with support I have paid my fees for the test and everything is complete.'

The Treasury director went on: 'I must make myself clear. The fact is, I have an agreement with the nitrogen industry whereby if I can stimulate the farmers to use more nitrogen than usual I receive a royalty for each sack being sold. If now the farmers were to change to the copper plough the demand would permanently diminish, and thus I need royalties from your ploughs as compensation. Can't we come to an understanding as old friends and make a good deal for us both?'

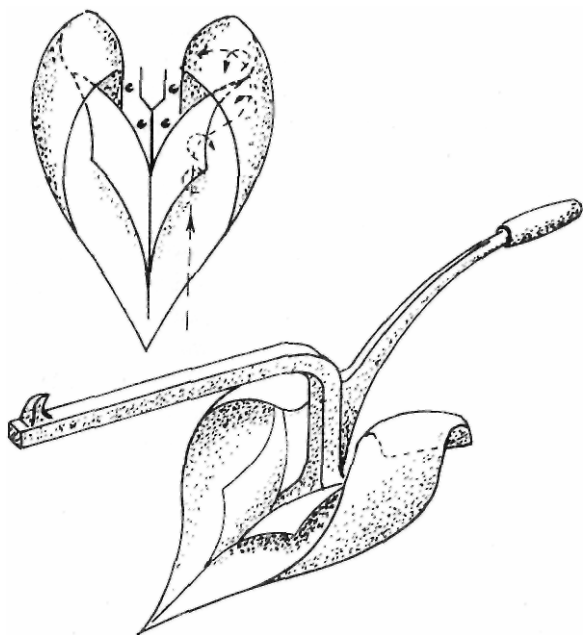
Schauburger replied furiously: 'I have only one thing to say

to you - you are a greedy rascal - a thing I should have understood at once - when as a representative of the people you drive around in a luxury car.'

It was after this exchange that there was a surprise termination of the contract from the company that was to have provided the ploughs. Representatives from the local agricultural society also started to warn farmers against using the copper plough as it could cause over-production which would give lower prices. Thereby their production and use were totally halted. In 1950, Schauberger, together with engineer Rosenberger, however, obtained a patent on a method of coating the active surfaces of farm machinery with copper.<sup>28</sup>

### The Spiral Plough

Schauberger also wondered if the conventional plough even functioned biologically correctly. Here, also, his ideas on the



The spiral plough should duplicate the work of the mole. The dashed line with an arrow shows the movement of soil through the plough.

importance of natural motion were relevant. It occurred to him that soil should be directed into a centripetal motion when ploughed, and mis led him to develop the 'spiral plough', though this never passed the model stage. Its principle of turning the soil was much the same as that used by the burrowing mole. Because of the shape of the cutting and turning blades, the plough should work the soil with almost no resistance, rendering it free from the pressure and friction and consequent heating that accompany use of the normal plough. The spiral plough was not meant to be used for deep ploughing, but only for the treatment of the surface soil. Schauberger was against deep ploughing and sided with the biologically and ecologically-influenced farming community, which thought deep ploughing only disturbed the micro-organisms' important work and upset the natural levelling of the mouldy top soil.<sup>23</sup>

### The Repulsator and 'Noble' Compost

To Schauberger, as we have seen, the growth process was above all a question of energy. He understood growth as a balancing process between geospheric energy and atmospheric energy. He saw the plant as the end product of energies meeting each other above the insulation layer at surface level. Thus all his attempts to encourage growth were devoted to increasing the soil's energy, and to encouraging the build-up and preservation of the insulation 'skin'. He rejected all activity that removed energy from the ground and damaged the insulation. Consequently he was, for example, a vigorous opponent of Thomas-phosphate,<sup>51</sup> a product of the blast furnace which drains the soil of strength. When it is introduced to the soil it tried to compensate for this by attracting new energy. One way to build up the ground energy is by adding stable manure, compost, micro-nutritional elements, and catalysts to the soil, which should in turn be well covered and protected from the direct rays of the sun. Also, iron tools are to be avoided. It is of course important that the whole landscape is healthy, with forests and water living natural lives, as it is from these sources that the ground energy originates. Schauberger stressed, on the other hand, that the ground's energy could be increased by using 'biological' machinery. The 'repulsator', for example, could be used to produce specially charged

water. This special 'power water' was to be spread over fields at a maximum temperature of  $+7^{\circ}\text{C}$ . Alternatively, the thick insulation consisting of some hydrocarbon material built up around the repulsator could be turned into the ground to be treated. When functioning, the machine produced a 'bio-radiation', raying out horizontally into the ground, thus assisting in building up the 'ground charge'. With this and other apparatus, Schauberger thought it might be possible to transform deserts into fertile regions within a short time.

He distrusted the ability of prevailing science to deal with the earth's fertility - a malaise that this science has helped to create:

In any case, it is astonishing to note how modern science acts in opposition to that which is presented to man in unspoiled nature. It tends, in fact, to oppose Nature as it was before man violated it. It is hardly surprising that food production is at best only barely sufficient for immediate needs; there should be great surpluses. Today's science thinks so primitively; one could say an octave too low. It concerns itself with materialistic rather than with energy-producing fields. For this reason, it must shoulder most of the blame for the conditions prevailing today. Probably, this path of development was necessary, otherwise how would confused man recognise the true interrelationship between man and Nature? It is now vital to demonstrate with practical examples how it is possible to create a close-to-Nature land culture before the whole of mankind is totally stripped of human feeling.

Viktor Schauberger gives much practical advice in his writings on what he calls 'close-to-Nature farming'. He describes a home-made repulsator that anyone can make; you take a vessel of wood, unbaked clay or glass, and it should be preferably egg-shaped, (nails or nail bands must not be incorporated in the wooden vessel). The vessel should be about two metres high, and should be buried in a shady place, so that the opening at the top is level with the ground, and the egg shape tapers downwards. Water of the best quality is poured in, and a few handfuls of powdered animal horn (or other organic materials such as bone, feather dust, hen droppings or cow manure, etc.) is added, and finally some

copper and zinc particles that have previously been hammered against, for example, a piece of oak. The solution is then stirred with a wooden ladle impregnated with thin copper and silver plates (N.B. no iron nails!), first slowly from the left, inwards from the edge, so a swirl is created, and then this is repeated from the right. Then a tightly fitting wooden lid (no iron nails!) covers the vessel, but this has a small hole of 1 cm diameter, which is covered with a piece of linen. The vessel should be left for two to three weeks, and will then radiate a horizontal energy into the surrounding ground. After this time the water is used for irrigation, supplying a powerful energy to the plants. The vessel can even be filled with a liquid manure solution, in which case the vessel must taper upwards, and the solution be left for six weeks before application.<sup>29</sup>

The egg shape, which Schauberger thought to be an especially valuable and developed form has a special function. The shape will encourage the liquid to move in a cycloid spiral motion, initiated and maintained by changes in temperature.

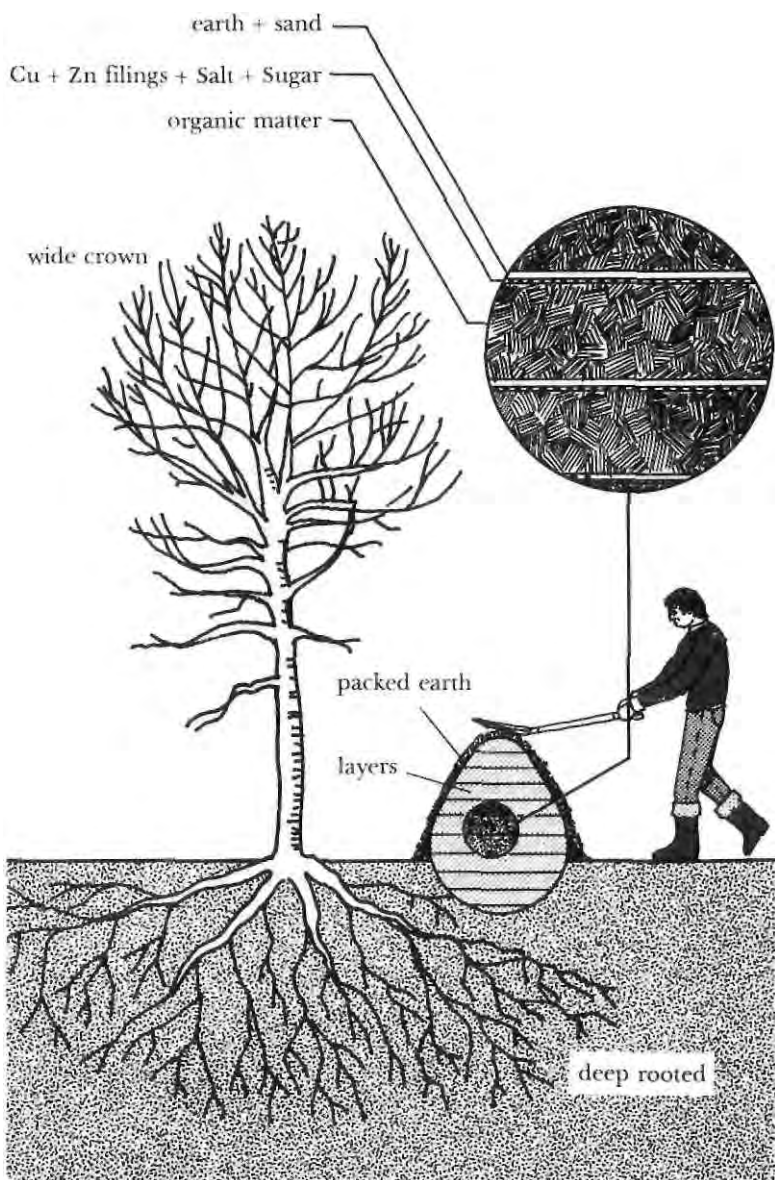
Schauberger gives us the recipe for one of his 'noble' composts, which he considered especially rich:

At the base of a tree, preferably a fruit tree, which has a wide crown and deep roots, a pit in the form of a half circle is dug on the shady side and where no damage to the roots can occur. The tree trunk is protected with paper, bark etc. from direct contact with the rotting earth, which is caused by the inevitable incidence of light impinging on this earth. Then a two span layer (40-50cm) of freshly sown grass with clippings of all kinds, such as potato and fruit peelings in as fresh and air-dry condition as possible is mixed with a variety of fruit stalks ...

This well mixed heap is then provided with ologodynamic (breakdown excitation) and catalytic (build-up excitation) copper and zinc dust. The best results can be obtained by filing pieces of zinc and copper and allowing the dust (only a very small amount is required) to spread widely on the ground as trace elements ...

Some salt and a limited amount of cane sugar are added, after which the whole mixture is placed in the pit and a layer of earth placed on top and made waterproof to prevent rain water from seeping in ...

This heap of compost is then left for a time until a further



'Noble' Compost Heap



amount of fresh waste (clippings etc.) again mixed with fresh grass, is added. After this, trample the heap and cover it with a 10cm layer of earth mixed with silica sand (preferably fine river bed sand). Then cover the whole layer against the rain (with straw, hay etc). Layer upon layer can be added reducing the radius so that the finished heap is egg-shaped. On the top, a layer of fallen leaves, lightly placed, forms an air lock and the entire heap is padded down smoothly with the broad side of a shovel, so that the rain drops falling from the trees will only dampen but not penetrate the surface of the heap. Under these conditions, the all-important surface tension can build up.

Schauberger then describes what happens in the heap: it attracts the soil's micro-organisms which flourish there throughout the summer. Then the worms die and in later winter they decay and change into high-grade molecular fats or the soil's oils. When it becomes  $+4^{\circ}\text{C}$  the heap flowers, and after two or three weeks it is ready, (if it was laid down the previous early summer). The compost soil has now completely changed with base elements and energy concentrations from earlier lifeforms. It can be spread over the ground with a spade of copper, bronze, wood or galvanised metal. Only a thin layer, about  $1/2$  cm, needs to be used, and this should immediately be mixed into the soil with tools that also must not be made of iron. Then the soil is ready for sowing.

No vermin shows itself on this earth. Hardly a weed is to be seen. The 30 per cent increase in harvest yield and the significantly higher quality of the produce is maintained and will continue to be maintained so long as this particular compost is applied.

Schauberger, as previously mentioned, condemned all artificial fertilizing, but especially that which has been subject to fire, or warmth of any kind. It then becomes, he says, to greater or lesser extent, of one polarity, and therefore attracts only the nutritive 'mother elements' in the soil. Although this may increase the harvest in amount, the soil is damaged through the disruption of its life processes, and, consequently, products from such soil will be harmful in the long run to the human body, and are a constant drain on the physical and

spiritual energies of the person eating them.

A free people can only arise from a free earth. A people who violate Mother Earth have no right to own a home... Man is what he eats and he remains an animal so long as the build-up of products of quality is stifled. So a cycle is completed: infected water cannot produce healthy food. Infested water and poisoned nutrients cannot produce healthy blood. One is only superficially aware that the spiritual functions have not developed and that the decreasing quality of grain production has an effect on future generations. The farmer of today treats Mother Earth in a worse manner than a whore. Moreover, he prays to a god, whom he believes is up above but in reality is under his feet. The modern farmer violates the earth, which reacts by opposing her. The god he strips yearly the skin of the earth and applies poison as artificial manure and then wonders why this wretched process demands more work and yet yields less and less each year.

The old farmer was, for the clod of earth, both its priest and doctor. The modern farmer, on the other hand, is personally and collectively harassed politically and is concerned about government subsidies. He believes that he can, to a massive extent, defy Nature.

The modern doctor is similarly quite helpless in combating the increasing spread of cancer. He is unable to stimulate the internal strength of the body, which has been weakened through digesting foodstuffs produced by artificial fertilisers. In certain glands, symptoms of putrefaction can be detected.

In the same way, the modern impatient farmer driving his wretched machine in the fields, is required to put in more work with a corresponding reduction in the rate of yield, which is governed internally by the earth (not by what is added).

The whole decline of agriculture, our most important source of nutrition, could, according to Schauberger, be halted if we were humbly to recognise Nature's order, and copy its methods. We must acknowledge that growth does not depend on chemical and mechanical inputs, but on the balance of energy relationships of soil and water.

## SCHAUBERGER'S CRITICISM OF SCIENCE AND SOCIETY

### Death Technology and the False Culture

With increasing bitterness, Schauberger realized that his attempts to alert 'the establishment' to the breakdown of the ecological order were achieving little result. Nor had he had any success in his attempts to get scientists to stop their technology of mass suicide. His only hope was that one day human beings generally would wake up and force a change.

The longing for Nature, strong, silent and healthy, is the vital phenomenon of our time, and is the counterbalance to an inorganic civilisation, which we mistakenly describe as culture. The present civilisation is the work of man, who has built up in his own autocratic way a superficial world which threatens to destroy him. He should be master of the world, but due to his behaviour and activities, he has destroyed Nature's unity and order. There is a growing conviction, as we stand confronted by our own creations, that they will destroy us; we cannot see what direction to take towards a better life, as each step seems to lead inexorably towards a worse one. The only way left is to return to Nature. Man is created from Nature, and is therefore dependent on Nature's laws. Man has created his own pseudo-culture in which, as time has passed, Nature's influence has become meaningless and irrelevant, because of the enormous power of the technical resources in man's power, and which threaten to usurp the natural forces. This technical monster has already harmed Nature's vital processes. Man is only a minute grain, a micro-organism, in the totality of Nature, who through his own endeavours has upset the balance of life in

a remarkably short space of time, and threatens the demise of the higher quality life on this planet

The power behind this is our intellect and the senseless progress of technology and lawless culture it has created, which has brought about the interruption of the natural flow of water in the earth. All that has been created by the mechanistic civilisation will finally collapse as the tempo of change increases. It will not be just a temporary crisis, but will lead to a permanent break-up of culture built like a tower on sand. Unfortunately what was true in the culture will also be swept away.

### Biological and Spiritual Breakdown or a New Revolution

Schauberger's hopes lay with the young. In the midst of his despair he thought he could discern some indication that the youth might refuse to support technological development

When one sees the youth today refusing to take the broad road to destruction, there is hope for mankind. But this is not enough. Young people will only start acting when the cause of our present chaos has been uncovered. This will not solve our problems, as the co-called experts will do all they can to protect their way of life and their position in society. However, even this conservatism could be overcome if it were possible to localise the problems, so that one could be disentangled from another and tackled separately. There is very strong evidence that misunderstandings of our environment originating centuries ago have contributed to the spread of illness today. This has further been compounded by incorrect methods of treatment which have led to serious cultural, technical and economic failures. No area of public life can escape, which means that almost every 'expert' in all walks of life will feel threatened. So no co-operation for sensible change can be expected from any experts. Their opposition will, in fact demonstrate our priorities.

Now the time has come for every single person to ponder on the world's situation. It is enough for everyone to start thinking about the state of our water.

Everyone who is unfortunate enough not to be able to get a fresh cool drink from a natural spring should consider where his water comes from, how it is transported and through what artificial means it is made drinkable.

Those who year after year are forced to drink only sterilized water should, for once, consider what effect such chemically adulterated water has on their organisms. Water which has been sterilized and adulterated leads inevitably to bodily decline. It also causes spiritual debilitation and a systematic degeneration of the very foundations of manhood.

Many people comfort themselves by saying 'It isn't that bad'. Soon technology and science will solve the problems. Such reasoning is, however, symptomatic of how far the decline has already reached.

The reason why man's cultural and economic decline is punctuated by transitory crises is due to his spiritual decay, which inevitably follows each stage of bodily decline. Civilized man, despite his supposedly high technical culture, has reached such depravity, that he is no longer able to recognise this physical and moral decline as being in fact a continuous and progressive cultural decline.

Those who can see the mistakes of the past must not be seduced by the comforts of the present materialistic life; the only way to find the solution to our problems is to expose, for all our worth, the attitudes which have been responsible for our present predicament

The best way is to shout from the rooftops when we hear the wrong counsel being given. All members of society, the poor and the rich, the high and the low, must be made aware of doubtful claims and misrepresentations, which are becoming more and more evident. A new attitude about what is important in our society should then begin to pervade the majority of people, so that the will of the people will enforce a change which can never be reversed.

Those who, because of their jobs, are forced to earn their bread in the large towns, should realise that as bread and also water become ever scarcer, they also become more costly and of a lower quality. While it may be unpopular to warn of impending danger, the attempt should be made,

whether it is a case of not knowing or not wishing to know.

Schauberger saw the catastrophe approaching - complete chaos as the result of the break-up of the existing technological and social structures. But after this he glimpsed a new age, where man has finally learned to understand the need to live in relationship with Nature, and so,

some comfort can be derived from today's unacceptable activities. The time will come when man will think back and say to himself, 'They were idiots; they seriously believed they could force upon the world a false technique, to create a culture.'

Schauberger is clear about the path to be taken by these future generations:

Mankind in the future will be in complete control of the material of the world and will be able to guide its progress towards better quality. He will become the supreme servant and at the same time the lord of Nature. Marvellous harvests will provide him with food of the highest quality and also he will enjoy absolute freedom of movement over land, water and air ...

Consequently, life's battle, class war, the fight for existence and, above all, every war for food and raw materials, will cease. There will also be fundamental changes in medical curative methods. What Paracelsus anticipated will become a reality: a certain element will be discovered which will nip the germ of every illness in the bud. Man will become a stranger to illness and thus will be happy with life. There will be ample space for everyone who takes part in the whole process of development in the use of raw materials.

Everything emerged from the water. Water, therefore, is the raw material of every culture or the basis of every bodily and spiritual development. The discovery of the secrets of water makes nonsense of every kind of speculation leading to war, hate, envy, intolerance and discord. It would mean the end of monopoly, the end of all forms of domination and the recognition of individualism in its most complete form.

By way of naturally occurring oxidation (cold com-

bustion), machine power can be generated, and substances produced in great variety, which in turn can stimulate growth, merely from the air and from water.

It is clear how man can become the master as well as the servant of all creation. Yet this possibility is held on a knife edge, and one mistake could plunge him into the abyss. The man who understands creative transformation is like a god. The one who manipulates this for his own ends is a servant of the devil, who can destroy the whole world.

## THE FINAL YEARS

### Experiments at the Technical College in Stuttgart

In 1952 the federal university concerned with the management of water resources asked Professor Franz Popel of the college to undertake certain experiments to test Viktor Schaubberger's theories about water. When Walter and Viktor Schaubberger came to participate in the experiments, Professor Popel was unwilling to go through with them. He told minister Kumpf that Schaubberger's reasoning went against the laws of mechanics, and that he considered the tests could not provide any technically useful results. Kumpf agreed with Professor Popel, but he still wanted the experiments carried out, so that Schaubberger's fantasies would finally be discredited.

The experiments got under way, and it was the characteristics of water motion that were first studied. Schaubberger started by asking Popel if he had ever wondered what happened to water when it left the bath tub. The formation of a funnel shaped spiral could be seen as it drained out - but what happened after that? A faint glimmer of interest appeared in Popel's eyes, and they constructed a test model with which it was hoped to investigate straight and spiral pipes in order to determine:

- 1) Can water that flows through a pipe be encouraged into 'a manifold inward flowing motion?'
- 2) Does the shape of the pipe have any bearing on the development of such a motion?
- 3) Does the material of the pipe have a bearing on the result?
- 4) Do molecular structural changes occur in the water during such inward flowing motion?



5) Can such an inward flowing motion be used to prevent pipes from crusting up?

The test model that was built for this experiment consisted of a large container shaped like half an egg. To its bottom was attached a glass pipe several metres long. Into the vessel was placed a hose wound in a spiral, the inside of which was perforated with holes, so that the water flowing out through them created a strong swishing motion within the container. If the water was coloured it could be easily seen that the swirl continued down through the glass pipe, and that the intensity of the colour increased towards the centre of the axis of flow. Professor Popel now began to be seriously interested, and lowered a number of small triangles hung on strings, so that a long prism was formed to enable more exact studies to be made. It was observed that this prism revolved in the same way as the spiral.

Next they wanted to find out how substances that were not water-absorbing would behave in this swirl. A measure of sand and fine iron filings were, therefore, poured into the vessel container.

To their great surprise, Popel and his assistants found that these additives were not forced out against the wall of the pipe, but were instead wound together within the axis of the spiral motion and there they seemed to coagulate into egg-shaped forms. These they gathered in a container at the outlet. If one of these 'eggs' was broken apart, there was no moisture to be found within it.

A special control regulated the water flow and with the right 'tuning' a motionless wave of egg-shaped curves formed inside the pipe, and like a string of pearls could move up and down, according to the pitch of tuning.<sup>30</sup> It was observed that a triple motion occurred in the pipe. There was a spiral motion within a spiral motion and a motion up and down in long profile. There was also a strange light phenomenon around the pipe.

When the tests were completed, Popel was no longer negative, and enthusiastically wished to continue. He said that now he understood that new factors must apply when a spiral pipe is used. But he was still taken aback at the pipe which Viktor Schauburger then introduced - it was based on the shape of the Kudu antelope's horn. At first he thought it mad to use an 'outlandish shape', but later he agreed.



The spiral above is a copy from the horn of a Kudu antelope which was used in experiments at the Technical College in Stuttgart.

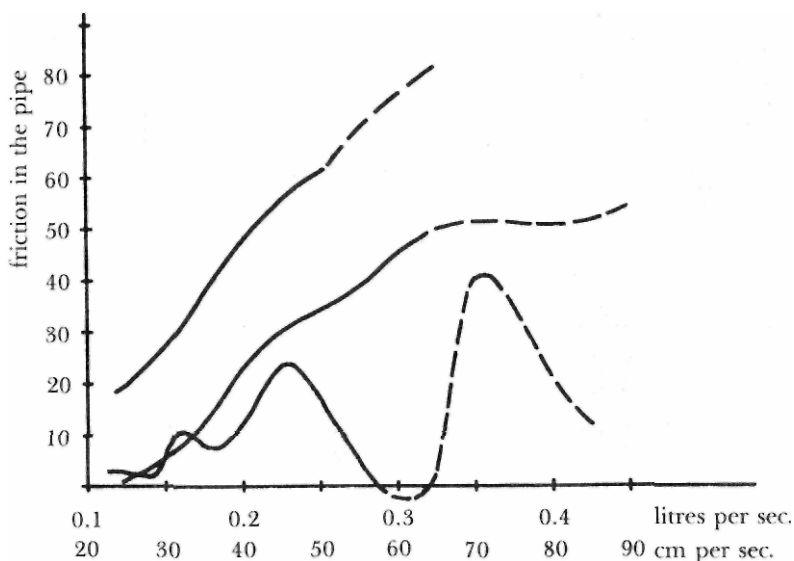
They now made flow tests with a straight test pipe of glass, a straight copper pipe, and finally a strange spiral pipe (which fairly well represented Schauberger's ideas about the cycloid spiral space curve).

The results started Popel and his associates. The glass pipe which had completely smooth walls caused greater resistance to water than the copper pipe, and it seemed as if the material really influenced the friction. The spiral pipe provided the biggest surprise: with a relatively high rate of flow the resistance dropped towards zero, and then suddenly became a negative value. When the rate of flow was increased there were certain resonance points when friction was at a minimum. In a

straight pipe the resistance increased towards a point when it reached a 'wall' where resistance became greater than the energy required in creating the flow.

The glass pipe was shown to have a greater resistance to the water flow than the copper pipe, and the precise measurements had indicated a tendency to wave building in straight pipes. The water apparently tried to break into wave formation and winding meanders, although it constantly met up with the sides of the pipe, which were not 'in step' with its own natural flow. In the spiral pipe, however, the water could move as it wanted, and so resistance was reduced. Professor Popel wrote this about the special pipe: 'It seems that in this pipe the pillar of water releases itself from the pipe walls and, freely swinging, rushes forth through the pipe.'<sup>31</sup>

Thus, Viktor Schaubberger's theories of water motion had been confirmed even in a laboratory where the natural conditions for natural motion could only be roughly duplicated.



Graph of the tests in Stuttgart The upper curve shows friction in a straight glass pipe; the middle curve, in a straight copper pipe; and the bottom curve, the spiral-wound copper pipe. The solid lines show measured values, and the broken lines the estimated values.

## Fantasy or Reality?

In 1956 the Austrian author and occultist Leopold Brandstatter wrote the book *Implosion* instead of *Explosion*. The author wanted, through this book, to publicize the name of Viktor Schauberger to a wider public, and to generate opinion against the increasing nuclear danger. The book attempted to show that there was already an alternative, which did not threaten life, to the so-called 'peaceful' power. With the best intentions, Brandstatter's speculative approach clearly coloured the content of his book. He had reworked his long interviews with Viktor Schauberger to fit his understanding of the meaning of Schauberger's discoveries. The result was a mixture of facts and fantasy. The critical eye was put off by the occult language and the fantastic descriptions of implosion power. The less critical believed that a huge technological revolution had already begun. In Germany, especially, there was great interest in Schauberger and implosion research. Some periodicals took an ideal stance, and, critical of the contemporary situation, suggested grandiose plans should be made to form an international Viktor Schauberger movement. Some writers implied that Schauberger's implosion machine was ready for mass production. As soon as enough capital had been generated, production would start. All the world's power stations and nuclear plants could be shut down, great wide sweeping reforms could begin and the beginning of a new millenium society was on the horizon. Guarantees should be obtained from all Governments in the world to ensure that implosion power was not to be used for military purposes. Viktor Schauberger was kindly enough disposed towards all this publicity, but he expressed his dislike of Brandstatter's misuse of the interviews. He was enthusiastic that his message should reach the masses all over the world, but he was also wary of getting caught up in big plans. He declined to support the planned movement in his name, and instead he strove for the establishment of an international research institute in Austria for the continuation of research into implosion. He had the hindsight of some bitter experiences in his life. People had appeared to want to support him, only to deceive him. He also feared that the centres of power he most distrusted, the energy and armament monopolies, would exploit his discoveries behind his back.

His health was also suspect. The effort and stress of the war, his arduous research and his shortage of funds had all taken their toll. He had asthma, and periodically suffered from a weak heart. He continued his work despite mounting difficulties. The implosion machine had been a particularly heavy drain, financially and physically. He was greatly troubled at the headlong flight of the world towards catastrophe. He was especially alarmed at the development of nuclear power, which he thought the greatest threat of all. He felt an unavoidable compulsion in some way to help solve the world's energy problems using biotechnological principles to halt the breakdown. But where could he obtain the funds?

### The American Connection. Viktor Schauburger's Death

This was the situation when two Americans came to visit Schauburger in the winter of 1957/58. The contact had been made through one of the newspapers that worked most energetically for the formation of the international movement for implosion. Schauburger's health had deteriorated during the winter and he occasionally said he thought he had not much longer to live. He became more and more troubled and restless, and he made despairing efforts to solve the problems that were preventing the implosion machine from working properly. What happened then is described by his old friend and associate, Aloys Kokaly, head of the German biotechnical institute.

Last year, while on a lecture tour through South Germany and Austria, I visited Viktor Schauburger in Bad Ischl. He was in company with two Americans. One of these spoke fluent German with a Bavarian accent. Under the circumstances, I was only able to speak a few minutes with Schauburger. Using the phrase 'strictly confidential', Mr Karl Gerscheimer declared that both Schauburgers (Viktor Schauburger and his son) would shortly be flying to America. The 'Schauburger case', he continued, must in all circumstances become also a case for the U.S.A. All technical preparations had already been put in hand appropriate to the vast knowledge which Schauburger was capable of imparting. Unlimited funds would be available. Above all, work must proceed at a pace, because Schau-

berger's visit was limited to three months. Viktor Schauburger spoke of an 'initial help', which, in the three months available, he wished to give.

A German periodical continues the story:

Schauburger and his son were flown to Texas. All that was required in documents, models, equipment and such material was despatched to U.S.A. The months of June, July, August and September in Texas are the most uncomfortable. Was it hoped that Viktor Schauburger would quickly succumb under these conditions - temperature at noon between 36° and 41°C? Schauburger and his son were taken to the solitude of the Texan desert near the Red River. There was no communication with the outside world. The post was censored. The answer to the question as to when would the research work begin was 'Now we have time'. Instruction was given that all findings would be recorded in writing.

The ultimate report with drawings was sent to an expert in atomic technology for analysis. In September this expert, from the state of New York, took part in a three day conference in Texas. His findings were conclusive. He summarized his views: 'The path which Mr Schauburger in his treatise and with his models has followed, is the biotechnical path of the future. What Schauburger proposes and says and asserts is correct In four years, all this will be confirmed.'

When the three months passed Viktor Schauburger insisted on returning to Europe. From the American side, however, the cry was, 'Now that the results achieved have been so outstandingly satisfactory, you and your son must remain here. A matter so revolutionary as this demands a sacrifice! For the next few years you will both be given accommodation in the desert region of Arizona.' The Schauburgers disagreed with such a plan. Eventually Viktor Schauburger was told that he could return home, but with the proviso that he would attend a course in English (he was totally ignorant of the language). He was given thirty minutes to decide. One of the Americans present orally translated this proposition, after a heated argument with both Schauburgers.

For Viktor Schauburger there was no choice. Under duress he agreed to the proposition. His son, Walter Schauburger, was asked to sign a contract, but this he refused to do, because as a visitor to U.S.A. he would be subject to the then current laws.

The agreement included a statement which precluded Viktor Schauburger from passing over any knowledge of his work, past, present and future, except to a 'Mr R.D.' [Robert Donner]. It was made clear to his son that if he did not keep silent in this respect Viktor Schauburger would be silenced by middlemen based in Munich.

In accordance with this 'Texas Agreement', the boss 'Mr R.D.' would have the 'right' to sell the Schauburger case, either wholly or in part, to other groups in transit.

Without any rest Viktor Schauburger and his son returned to Austria after a 19-hour flight Viktor Schauburger was unable psychologically to overcome this ordeal and began to vegetate, as if his brain, his intelligence, his spiritual being, all his thoughts 'belonged' to Mr R.D.

Five days after he returned home, on 25 September 1958, Viktor Schauburger died, in Linz, at the age of 73. Despairingly he repeated over and over again: 'They took everything from me, everything. I don't even own myself.'

## SCHAUBERGER'S HERITAGE

When Viktor Schauburger died, an extraordinary and moving personal crusade ended. All his life he had fought for water, forest and soil, for Nature's wholeness and order, but he had seldom received any acclaim. Attacked, pursued, persecuted, interned, and finally sick and impoverished, he continued to search for a last chance of realizing his dream of giving humanity a new life-building technology. Then he was forced into a nightmare experience which ended his life. He was not even allowed to go in peace. He died in despair that all he had toiled and fought for had now come to nought. It had all been taken away from him by commercial gangsters after they had tricked him with false promises.

How did he see himself before his tragic ending? What had he thought to be his life's task? How had it been possible for him so confidently to criticize technology and science? How could he, who had spent the greater part of his life in the wilderness, presume to have found a better path for humanity, coming forward with discoveries that all the world's scientific establishment had missed?

Let us not make the initial mistake of equating academic qualifications with knowledge. Viktor Schauburger indeed had few qualifications, but this did not mean he was an uneducated man. Both his writings and testimonials from his friends confirm the breadth of his learning. He was well read in history, literature and philosophy. Goethe, to whom he often referred, was his inspiration. Technically, his writings reflect an extensive knowledge of physics, chemistry and hydrology. To this can be added his immense practical experience. Above all, he had been an unusually attentive student of Nature. Perhaps there lies an explanation of his authoritative



behaviour in the following: once when Schauberger was attempting to transform stinking sewage solution into clear spring water, he was visited by some senior and highly educated Austrian Jews who asked where he had obtained his knowledge. They maintained that the process had been known since ancient times in secret Jewish tradition, but it had been lost long ago.

Schauberger answered that nobody had taught him, though he himself had the advantage of inheritance. When asked what he meant by inheritance, he replied, 'Everything is corpuscular, even energy and light waves. Even matter is inert energy. This also applies to blood, which is a materialized power flow that carries energy from past generations through present to future generations. This flow is not broken with the person's death, but is carried further to his successors. However, this energy can be degenerated, for example, by negative technology, so that the thoughts and outlook which have accumulated within a person's being over thousands of years, is lost. It is possible for the person who has the advantage of this gift of inheritance, to summon up from his blood all this reservoir of knowledge.'

This person need not speculate, because he can see the difference between ancient and modern knowledge and can therefore choose between knowledge and science.

Schauberger was himself convinced he had this gift. He knew, he did not need to assemble proof. So he at once saw things in Nature that no-one else could see. He saw what really happened, not what seemed to happen. The difficulties he had were on another level. To translate what he clearly saw into practice, and often with inadequate resources, and to be able to 'materialize', so to speak, the images he himself saw sharply defined and which he never doubted, this was his problem. He knew, and with the inward authority that this gave him he kept up his condemnation of technology, science and politics.

There is something Old Testament-like in his person. He did not choose - he was chosen to spread the word of his revolutionary teachings. People were irritated by his self-confident language, his words of judgement; but they did not understand that he was not 'preaching' for himself. He was a prophet who expressed his anathema to 'death' technology, and to those who degrade life on earth.



Spiral movement in water.

He knew that he was right, and yet vacillated in telling us all he knew. He feared constantly that his discoveries would be misused by people who would work against Nature. He therefore spoke in a cryptic language, giving hints and half explanations. His writings have to be studied for years before one can learn his code... he knew that this invited difficulties, but he could not act in any other way. In a letter to Professor Ude, the Catholic priest and social and economic reformer, asking him for help to save the young from the fate awaiting them, he wrote:

Do you think I would have stood up in public to the extent that I have if I did not have an overwhelming evidence in my hands? Of course not - but I do not aim to cast this profound knowledge to the swine. Capitalists are not idealists. They have all gone wrong, - the capitalists, socialists and communists. And even the scientists are turning back the clock of understanding.

Here lies a deep tragedy. When he could no longer hide his secrets, because the destruction of life's fundamental processes took on more and more alarming dimensions, he was forced to do that which he most feared throughout his life, to throw pearls to the swine.

### Others' Judgements of Viktor Schaubерger

The people I have personally met who knew Viktor Schaubерger are unanimous in agreeing he was an honest and decent man - natural and hearty, and with a fine sense of humour. If, however, he met with dishonesty or pretence, he became intolerant at once, without regard for the social background of the guilty party.

He thrived in the company of farmers, foresters, and hunters, and the simple life of the forest and country. He did not shy away from social gatherings and always impressed people with his strong personality and dignity.

He had loyal friends and associates, some of whom wrote about him. The first is Professor Werner Zimmermann of Switzerland, a social reformer well known throughout central Europe.

I got to know Viktor Schaubерger in Vienna in 1930, when he attended one of my lectures. He talked about his activities, showed me apparatus he had constructed and allowed me to drink of the water he had purified. In September 1935 his first essay on Regulating the Rhine was published in my periodical *Tau*, and was followed by many others until the banning of my periodical by the Hitler Government in 1938 ...

For me it was a great gift to have had the experience of knowing this able researcher and fighter. He was a man who had a close-to-Nature originality. He had piercing eyes, a prominent aquiline nose, an upright bearing and a flowing full beard. How sharp was his power of observation and also his judgement! How to the point were his answers! How heartily he could laugh! New ideas tumbled out, as clear water from a forest spring. To his friends, he was a trusted comrade - he gave to all strength, calmness, confidence, like the mountains amongst which he lived. In a superior way and unafraid, he served the truth and did his duty. In

July 1936 he wrote to me: 'He who lives a hundred years in advance is never surprised with the present.'

A hundred years - what will not happen by the year 2000? The wrong kind of progress will no doubt continue. But, at the same time, forces will emerge, even to be accepted by governments, as a healthy renewal. May they soon contribute towards the realization of Schauberger's vision of the future as of a prophet and what he fought for, during his whole life.

Another was Oswald Hitschfield, farmer and instructor for South German biological agriculture. He wrote:

It is often said that one's first impression is the most reliable. After reading in the 1930s some of Viktor Schauberger's papers on the necessity of allowing water to flow naturally, I met him personally for the first time, during the summer of 1942. We both took part in a conference, at which he held discussions with scientists of the old school. Even today, after more than thirty years, there is above all a particular memory which persists; his unshakeable self-confidence and inner conviction of the correctness of his theories. He countered all objections with what could be described as an air of superiority and authenticity, which deeply impressed all his colleagues. One had the distinct feeling that here spoke a man, endowed with an inner perception, before whom the elements of Nature and the structure of all life are unveiled, and in their correct order. My many discussions and considerable correspondence with Viktor Schauberger were principally concerned with the natural measures to ensure water economy for agriculture and forestry. In the pursuit of knowledge in this field I had met many people, but never before had I made contact with someone who could throw such clear light on often very complex problems, and who, the more I got to know him, won over my complete trust.

## THE SPREADING SCIENTIFIC SEARCH

Viktor Schauberger's life's work was not buried with him. The thoughts he threw out to the world continue after his death, and inspire other scientists to continue his works.

Soon after Viktor Schauberger's death a working co-operation was established between those who were closest to him. The Biotechnical Academy was formed in Austria under the leadership of Walter Schauberger. In West Germany an association for the advancement of biotechnology (Verein Zur Forderung Der Biotechnik) was started, to be followed by similar associations in Austria, Switzerland and Sweden. Since the beginning of the 1960s many academic courses have been running with a bias towards biotechnological studies. The periodical, *Implosion*, started by Kokaly in 1961, has published four issues a year since then.

At the end of the 1960s Walter Schauberger founded the Pythagoras-Kepler-School (P.K.S.) which is now the centre of research into technological ways of copying Nature.

A group of young academics from this school set up the Gruppe Der Neuen under the leadership of Dr Norbert Harthun, in West Germany in 1969. In association with P. K. S. they produce a periodical *Komische Evolution*, which deals with alternatives and relationships within society and technology.

At the end of the 1950s in Sweden an unofficial science group was formed, that in 1963 became constituted the Swedish Science group for Biological Technology. The group was reformed in 1968 as Biotec, the Scandinavian Institute for Biological Technology, which ceased in 1978. Since 1979 work has continued at the Institute for Ecological Technology.

For nearly two decades of intensive research, Walter Schauberger has followed a path, in part different from that of his



Walter Schauburger.

father. He has attempted within classical physics to try to find confirmation of what his father and himself had discovered. He has often found that Viktor Schauburger's theories are strengthened by the discoveries of famous physicists throughout history, though these discoveries have so far been interpreted in different ways.

Walter Schauburger and a team of scientists are now working through classical scientific models of reality and comparing them with Nature. If they deviate from Nature's reality, then attempts are made to correlate the existing models, and to create new ones that can better exist with Nature. These scientists hope to prove what Viktor Schauburger understood intuitively, namely, that our existing scientific world is false. While Nature is shown to be following a 'centripetal dynamic' direction in an expanding motion towards the beyond, - a transcendental goal-, science has set itself dramatically opposed to this, epitomised by its mechanistic technology, its models, and its theories.

This new research wants now to present a number of facts which have not been seriously studied. These demand a total change of our conventional world understanding, the physical and technological understanding about reality by Newtonian physical mathematics, Euclidean Geometry, and materialistic ideology. These scientists, however, maintain that a revision of this understanding of reality is long overdue, considering discoveries made by such great physicists as Gauss, Lobatchefski, Riemann, Einstein, Planck and others, who unmasked the current static world picture for what it is.

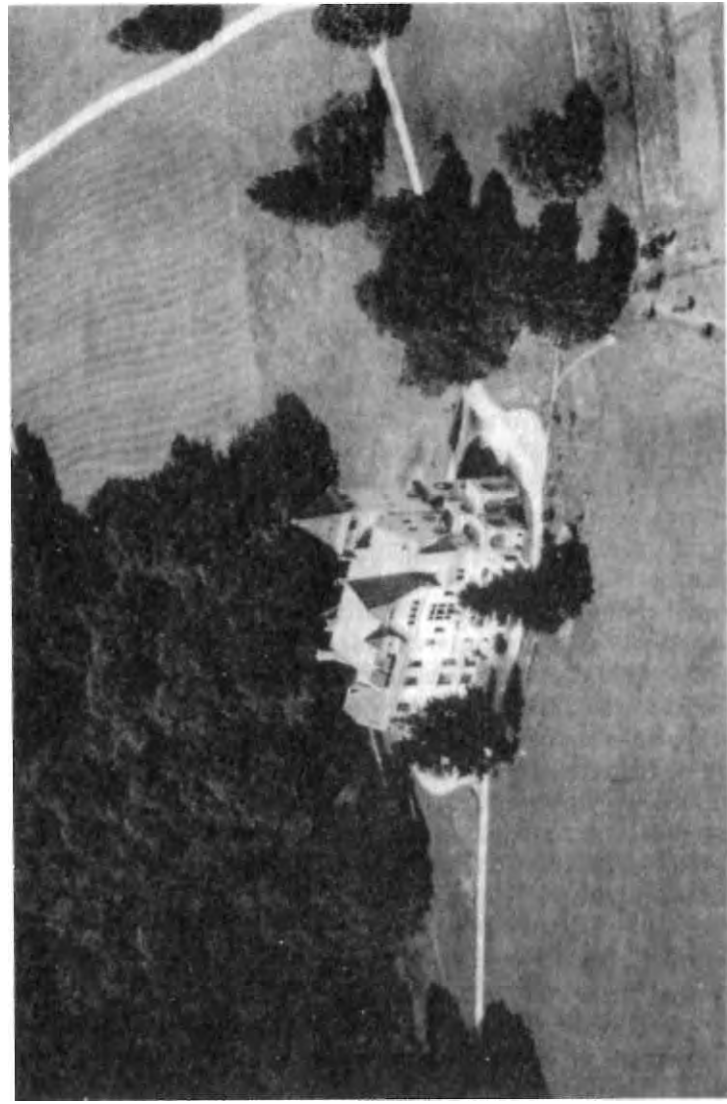
Professor G. Pleskot of Vienna University says this about the work of Walter Schauburger and his team:

Resulting from this research project, a completely unconventional concept is introduced by reconsidering the theoretical basis for all forms of technical development using 'humanizing techniques', which can be defined as being in harmony with, rather than, as occurs at present, in opposition to, the continuous development of mankind.

While present techniques have developed basically from Euclid's geometry and the philosophical concepts of Aristotle-Newton, the ideas of Ing. Schauburger's Pythagoras-Kepler-School have so advanced that the Euclidian principle now represents the transcendental field to which in reality the non-Euclidian principle adhered.

In considering further the intellectual concept of Pythagoras- Kepler- Gauss- Planck- Hasenohrl- Einstein, Schauburger recognized in the law of sound the synthesis of both principles as a basic law of the universe. Through this basic law, the natural combination of the pair of dialectic principles, such as continuity-discontinuity or time-energy is demonstrated.

Schauburger's desire is now to harness the principles of Aristotle- Euclid- Newton, now so greatly revised, to those of Pythagoras, developed over four hundred years since Kepler. This development can also be seen in the fields of technology, economics and politics. In this way, there would be the opportunity to create new schemes, which were both natural in concept and worthwhile for mankind. Thus it is clear that Schauburger's concept is on a grand scale and modern in principle. In my view, it deserves generous support now.



Pythagoras-Kepler School. Biotechnical Academy, Bad Ischl.



Here it is also of interest to note that if we accept the law of the formation and development of sound as a general law of the universe, it follows mathematically that the universe has a spiral structure. If the theory of the law of sound is correct then Viktor Schauberger's understanding of the 'cycloid spiral motion' as being life's own developing motion, is confirmed.<sup>32</sup>

The discoveries of two well-known physicists seem to support Viktor Schauberger's theories. The first is Ludwig Boltzmann (1804-1906) whose special field of research was steam technology, the efficiency of which he wanted to improve. To reach the pressures and the high temperatures that this technology demanded, Boltzmann found that the steam's or gas's molecules must be made to move in a straight line for high efficiency. At the same time he made the disappointing discovery that it was virtually impossible to create this straight-line movement, even with two-atom gases, such as hydrogen. When the two-atom gas was exposed to a moving impulse, it wanted to begin to spin, whereby its own rotation 'ate up' a large part of the energy created, leaving only a small amount to remain. It was even worse with multiple-atom gases, such as water steam, where a 'straight motion' was even more difficult to achieve. Boltzmann was very disappointed by these findings, for he thought the study of heat and heat technology were the most important base for the existing technology, and if high efficiency could not be obtained, then it must mean that Nature is mistaken. Low efficiency will cause such extensive fuel depletion, that soon we will exhaust the world's energy supplies, he thought. The situation today shows that Boltzmann's fears were justified. At the same time, however, his discoveries confirm Viktor Schauberger's argument that Nature tries to prevent straight line motion. Small particles wish rather to move in a 'planetary' orbit, rather than to be forced into the straight-line motion which suits our technology. When technologists now continue to use this incorrect model of motion, they are also responsible for the plundering of earth's oil and coal supplies.

The other scientist who, without knowing it, confirmed with his experiments Viktor Schauberger's 'spiral motion' theory was Felix Ehrenhaft (1879-1952), Professor of Physics at Vienna University. Ehrenhaft developed the experiments of other scientists concerning the study of small particles of matter in magnetic fields and/or concentrated light rays. Fine

powdered material, for example silver, copper, chrome, coal etc. and even fine water droplets were introduced into evacuated glass tubes. As a tube was shaken the particles moved in suspension. If the particles were then exposed to concentrated rays of light, they started to follow certain paths, in that they turned into a path in a uniform way. Ehrenhaft wrote about this:

Totally new and surprising was that the particles' motion in the field was not straight, but flowed in screw-like paths with a most regular form, size and uniformity... drops of methyl orange for example ... moved in this way.

Similar results were obtained when the particles were exposed to the influence of a magnetic field. Local gas flows or the 'charge' of the particles were no explanation for the screw-like paths that resulted, which remained unaffected by such influences.

Also interesting was the fact that a centripetal power occurred that influenced particles 130 times more strongly than gravity.

Ehrenhaft's comments on the tests:

It is improbable that these phenomena of motion in light or magnetic fields can be explained with the help of existing hypotheses; we may be forced to turn to new ones.

Walter Schauburger has interpreted the test as follows:

Each energy particle in motion produces a field- an energy room - which is dependent on the motion, and the more concentrated this field is, the more it influences the surroundings, so that particles with a larger mass than the field producing particle can be drawn into the field. These particles of silver, nickel or carbon in comparison to light photons must be like huge boulders, but they were still drawn into the photons' swirling dance. We must therefore learn to move matter, when we can, in the way electrons and photons move ... and so with relatively small amounts of energy we will be able to move 'mountains'.

In short, Ehrenhaft's experiments indicate that Nature's



Virbela Flowforms are designed using a method developed by A. John Wilkes since 1970. The illustration shows one such vessel in series. Water streaming through the system pulsates rhythmically in a vortical meander creating a figure of eight flow path.

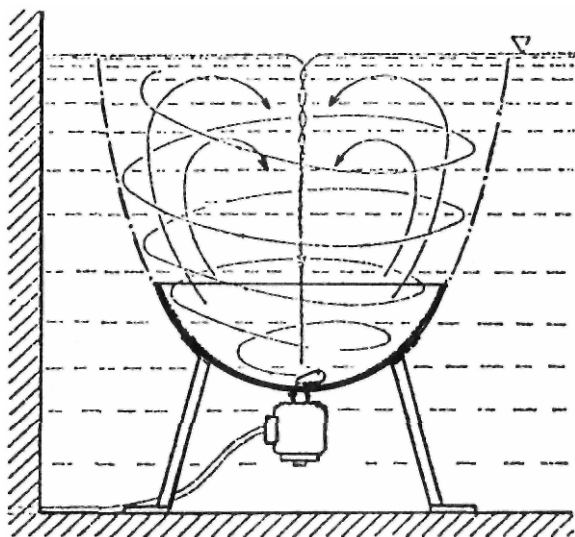
The quality of water thus treated is being investigated for its increased life supportive capacity, for the rhythmical character of all organisms and that of the overall environment maintains the reciprocal relationship between them.

most basic elements move in the spiral motion that Viktor Schauberger wanted to copy.

### Continuing Research

After Viktor Schauberger's death, biotechnical research has, in a practical way, concentrated on developing new methods and apparatus for the caring of the environment and for biosynthesis. In Sweden there has also been background research into the physics of water and forests, from the direction pointed to by Schauberger's work.

Projects for water and air filtration, usually led by Walter Schauberger, has led to new patents for models of apparatus. On the following page is shown an apparatus for exhaust control on motor vehicles or heating installations. Other variations of this can be used for promoting other reactions, for example, synthesis. The models shown have specially shaped-reaction chambers of a certain material that is important as a catalyst. Built for the separation of, for example,

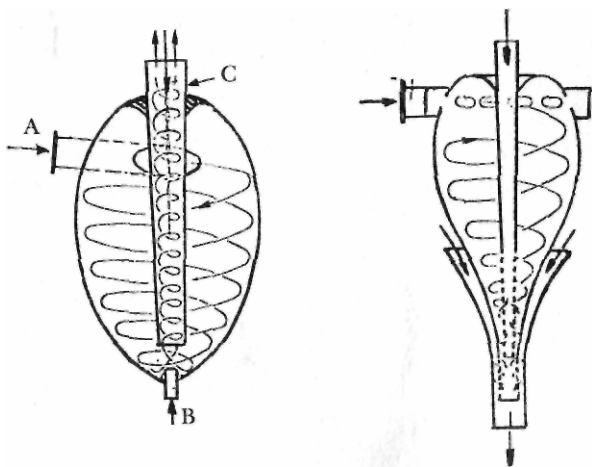


This diagram shows an apparatus for oxygenating water. A specially-designed agitator is attached to a suitably-shaped reaction vessel in a water reservoir. The agitator creates a whirlpool-like swirl which sucks air into the water. The increased oxygenation breaks down pollution.

sulphur dioxide from exhaust gases, these enter the chamber at inlet A, at a certain pressure, and are directed into a strong, wavering motion through the chamber's inner wall, down towards the narrower neck, where they mix with the reaction mixture, in this case water, which is drawn in through B. The sulphur dioxide reacts with water and sulphuric acid is formed. This then moves in a spiral upwards to the lengthened pipe, C, finally to drain out via the outlet. The exhaust gases freed from the sulphur flow at the same time through the same pipe, concentrated within the pipe's narrow longitudinal shape.

### Viktor Schauberger's View of Attitudes to Nature and Environmental Care

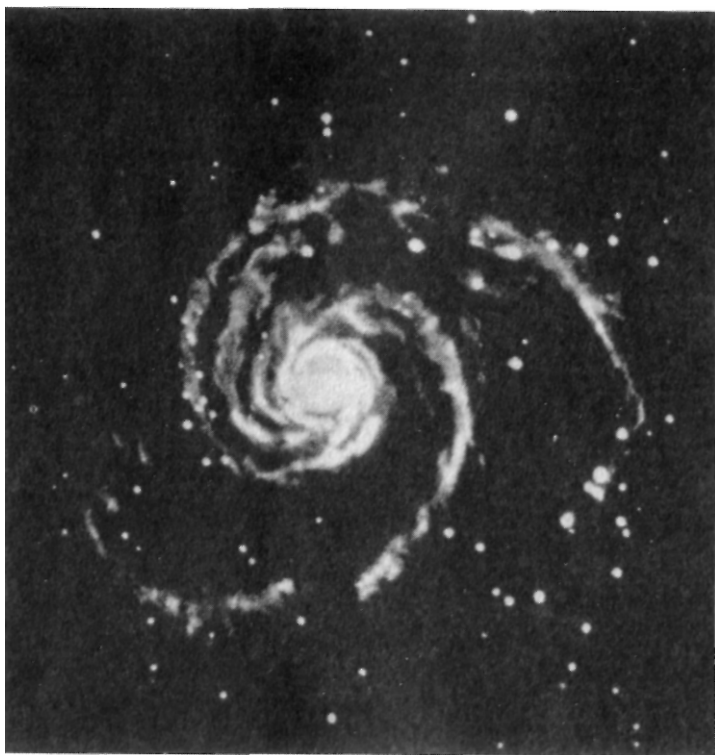
It is likely that Viktor Schauberger's ideas, and the research he has inspired, will stimulate radical new thinking about environmental care on several different fronts. He criticized prevailing science's understanding of Nature for 'thinking one octave too low'. He meant that the mechanical materialistic approach dominated at the expense of a qualitative view of Nature.



Two variations of an accelerator for nuclear fusion. Schauberger worked on these prototypes as safer alternatives to the reactors currently used in nuclear power stations.

In considering what the last decade has revealed about the extent of environmental destruction, and what ecological research has already discovered, there seems to be considerable justification for Viktor Schauberger's indictments. Ill-founded economic and technological priorities, and the compulsion towards profitability, still dominate our relationship with Nature, and even the protective measures which have now begun in a startled way still all too often lie 'one octave below' Nature's own way of working.

Viktor Schauberger has given fairly clear principles to guide us to a more realistic programme for saving and caring for our living environment. It is an urgent question for science at all levels to work out specific directions from these fundamental truths. It is probably the most urgent of all tasks facing science



A nebula spiral, as a cosmic vortex.

today. Politicians and economists will also have to undertake a new way of thinking. Nature can no longer be regarded as a base for material well-being. It is the basis for our life, and if we harm it through over-exploitation then the quality of life will be quickly undermined until there is a final biological breakdown. A general biological catastrophe when the air, water and nutrition cycles can no longer function as fundamental life factors, must necessarily be followed by an economic, social and political breakdown.

Only by nursing these life factors can we ensure a safe base for future well-being. It is Viktor Schaubergers's legacy to have been a pioneer in showing and emphasizing the connection between Nature's health and the happiness and well-being of mankind.

#### Organisations Pursuing Research with Water

Max-Planck-Institut für Stromungsforchung  
Prof. E. A. Müller, D-3400 Göttingen, West Germany

Sternwarte am Goethaenium  
Dr. Georg Unger, CH-4143 Dornach, Switzerland

Warmonderhof Waterzuiveringsproject,  
Dr. Jan Diek van Mansfelt, NL-4012 NR Kerk Avegaath,  
Holland

Forschungs und Versuchsanstalt der Stadt Wien,  
Dipl. Ing. Dr. Paul Schutz, Rinnbockstrasse 15, A-Wien,  
Austria

Pythagoras- Kepler- Schule,  
A-4821, Lauffen, Austria

Flow Design Research Institute,  
Emerson College, Forest Row, Sussex RH18 5JU, England

Geothean Science Foundation,  
Olive Whicher, Hoathley Hill, West Hoathley, Sussex,  
England.

Nettlestone Laboratory,  
N. C. Thomas, 163 Toms Lane, Kings Langley, Herts,  
England.

Institutet for Ekologisk Teknik,  
Nygatan 60, S-902, 47 Umea, Sweden.



# APPENDIX I

## Contemporary Applications of Vortex Research

by Christopher Seebach

When, as children, we see the water spiralling down the bathtub drain, we can become aware that Nature works in a spiral. We later discover other phenomena in which this spin occurs, such as DNA, cyclones, beanstalks, magnets, galaxies and other forms of Nature, but few have considered that the spiral is the force behind all of Nature as have scientists like Schauburger, Pythagoras, John Ernst Worrell Keely (1837-1898) and Nichola Tesla (1856-1943).

Vortexian energies are the keys to life, for they are mirrored inside every living being of the planet. Once one realises this, then the whole notion of 'mystery' simply falls away. Walk through a forest, see a stream, look at your reflections in the stream; every part of that experience, on all levels, both visible and invisible, physical and spiritual is connected, for all of these are vortexian energy. It is not a question of harnessing this energy, but of releasing it from its confines and working with it in harmony. Vortexian energy, particularly in the case of water, derives from sympathetic harmonies and the avoidance of disharmony, as in the flow of energy patterns that are created by water as it becomes living water by moving through the bowels of the earth. This is a complex interplay of 'vibration', 'direction' and 'force', each of which is balanced both internally and externally. How is this energy to be released? The key here is the way in which this is done; for one needs to be in harmony with the planet in order to discover these sources of energy. Humanity has lived for so long under the spell of reductive science that it now requires totally new ways of understanding and perceiving in order to come to

terms with the existence and power of this energy. Natural spring or revitalised water does indeed 'live', not because it gives life, but because it is life, and of itself. Chemical analysis is inadequate in determining the biological properties of living/activated water\*. Any hydromineral therapist will tell you that you must drink the spring water from the source of a spa gradually (a quarter of a cup per day) or you will shock your system and become very ill until you get accustomed to it; alternatively you could drink the same water from a bottle several weeks later with no ill effect. (C. L. Kervan<sup>1</sup> 1966)

'Dead' water is often the result of humanity interfering with the water's natural flow and energy forces. Water creates and follows energy lines in the Earth. These lines are mirrors of the frequencies put out by the effects of water's vortexian energy. This mirroring\*\* allows the water to move freely with no friction. Thus, if craft are to be designed to be able to use vortexian energy as a motive force\*\*\*, they would do so not because of the power generated to overcome gravity and other forms of resistance, but because a frequency was set up which was in total harmony with the energies that lie at the heart of all matter. Thus there is no 'friction' or energy 'imbalance' between the matter that is trying to move and that which surrounds it. What is created is not a vacuum, but a field of

"The formula of water  $H_2O$  could only be a simplification, perhaps admissible in the state of steam, but certainly not in the liquid state where there are ionised molecules. Water has been proved to contain  $H_3O^+$  though in a small quantity, it also appears to contain  $H_5O_2^+$ ,  $H_7O_3^+$ . It is now accepted that hydronium ( $H_3O^+$ ) is an acid since it can give up a proton to the basic hydroxyl  $OH^-$  which then becomes  $H_2O$ .  $H_2O$  is thus either an acid or a base, depending upon the medium, because in giving up one proton  $OH^-$  remains, and in taking a proton up there is  $H_3O^+$  (Water is therefore amphiprotic). Ref: C. L. Kervan<sup>1</sup> 1966 "Biological Transmutations" Crosby Lockwood.

\*\*As to mirroring, specifically, we mean the setting of a harmonic frequency or resonance that duplicates that frequency range required for vortexian motion to occur unhindered. Indeed one could look at Nature as in perpetual vortexian motion, but there is a constant brake on it, so vortexian energy is only occasionally seen.

\*\*\*Sympathetic vibration in its simplicity is a usable force in activity; yet, with the radial activity of the latent force given in the sympathetic, synthetic, or syncothetic conditions, it then brings about the proper relationships which converts them into a usable force. Build upon the principle set forth here. Bringing the combination or relativity of elements with the active force of sympathetic vibration into relationship creates a usable motive force. This may be applied in various forms to any active principle (paraphrased). Edgar Cayce (1877-1945) Association for Research and Enlightenment, Virginia Beach, USA.

"Ere many generations pass our machinery will be driven by power obtainable at any point in the universe ... it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature". Nicola Tesla (1891)

harmony requiring very little or no force for actual movement through space, time or dimension.

In order for us to view the principles in the Austrian log chute project (see page 25), we must view nature from its own perspective and its very heart-parallels or clones of vortexian energy - rather than from a distorted view of reflection. Vortexian motion is present in all things - vortexian energy is created by the interplay between vortexian motion and the effect this motion has on that matter\* that is placed next to it.\*\* Different materials will have different 'resistances' to the transfer of vortexian motion from the mechanical surface to the water to be energised by the mechanical agitation of the water. The energising is affected by the density and molecular structure of the materials involved in the construction of the machine. Thus, when the water is given a vortexian motion by the design of the log chute, it transmits that motion to the surface molecules of the water and this transmission and the creation of a sympathetic frequency cause friction between the two to be removed, friction being disharmony and the result is the release or achievement/recognition of vortexian energy. Small temperature differences in the surface of the water affect the molecular structure of the surface that interacts with that of the wood on the chute, and the transfer of vortexian motion is affected by this molecular structure. In reality, it is the absence of friction that causes the motion, however, this is the result of energy which could be called vortexian energy as that is the source which creates it.

I was asked to write this article on the practical uses of this science, what it is and how vital it is today, from my own experience with the Aquarian Agency. Aquarian is a global service organisation of scientists, engineers, professionals, grass-root and alternative specialists in virtually every aspect of development from over 40 countries. All of their efforts have been combined to produce between them totally original viable solutions which will work with Nature's rhythms. By enhancing the processes based on principles of natural law, we

\*"There is no dividing of matter and force into two distinct terms, as they both are ONE. Force is liberated matter. Matter is force in bondage". Keely<sup>2</sup> 1893

\*\*\*"Coherent aggregates (any specific body (logs)) immersed in a medium (such as water or atmosphere) pulsating at their natural pitch (eigen frequency) simultaneously oscillate with the same frequency (of the medium), whether the pitch of the medium be a unison, or any harmonic (partial or component) of the fundamental (eigen frequency) pitch of the creative aggregate (body)". Keely 1893. (My italics)

will create optimum conditions to accelerate the growth of plants and trees (without forcing them) in reafforestation programmes, while selectively creating an ideal environment for sustainable future ecosystems to develop. We have, in the course of the last twelve years, discovered the tools and methods to accomplish this, and a few are described below to illustrate the practical present-day applications based on the same principles Viktor Schauberger researched.

Aquarian was formed twelve years ago when a group of multi-disciplined professionals, became aware of the probable impact of major planet-wide cold and famine/drought cycles (occurring every 510 and 170 years) converging in these decades, combined with a rise in pollution levels (which threatened to reverse the cold trend to dangerous levels), anticipated the need for a socially, financially and scientifically viable sustainable form of development project which would provide the means for a solution. The solution promises that this planet does not have to become uninhabitable, nor does it have to repeat its past history of greenhouse effects, ocean risings and ice ages! A global reafforestation project in selected areas would influence the (macro) vortices of temperature, weather, and tidal flows to produce a harmonious and stable series of climate cycles. (Little attention is being paid to the thermal ocean currents and subsequent tidal changes being brought about by the greenhouse effect, nor the effect of the deforestation of Brasil and Central Africa on wind currents, on the Gulf Stream and other ocean currents.) This project would need to have the capacity to green both deserts and denuded forests, as well as have the right mix of agroforestry and intercropping of undergrowth species (for medicinal herbs, insect repellents, wildlife and remineralisation through decay) which would evolve during the next century into a self-sustaining ecosystem. It would also provide nourishment and an independent thriving economy for the communities maintaining these forests.

It became apparent over the years that programmes based on inorganic chemicals and selective mono-cultures would not work on a permanent basis. This will be attested by any who have witnessed the barren grey soil 7-12 years after a 'green revolution' project, which accomplished much needed miracles over a short term, but had to face the annual increase in costs of chemicals, industrial equipment and other major

social and ecological costs. Therefore a natural and permanent self-sustaining system must be implemented.

Much of the Aquarian solution is made feasible by our ability to irrigate fully a billion new trees per year with desalinated water, provided at a fraction of normal capital, running and maintenance costs, using solar energy. Desalinated water is, however, lifeless. In our search for natural and cost effective ways to revivify it, we came across scientists who, like Viktor Schauberger, have been working with Nature to obtain the understanding to provide their solutions.

When rain falls, like distilled water, it is without life. It trickles down in spiraling motions around rocks beneath the ground, where it gradually meets a rising temperature, and begins at some point to percolate upwards, again in a spiraling motion, gathering mineral ions and life force until it meets light. There is a story that Schauberger once asked a farmer why there was a litde structure of rocks over the mouth of a stream. It was explained to him that if its shade was removed and the light let in the flow would stop. Schauberger had his men draw a diagram of the structure and dismanded it. The water flow did stop. The structure was replaced and the flow recommenced. This helped us to understand why rivers and streams disappear so quickly during deforestation, when the ground cover is removed. We will, in the future, be testing this by placing geodesic greenhouse domes ('Aquarian Oasis Starters') over such deforested areas, planting trees and undergrowth to encourage the water to flow again. Care must be taken to assure that when we are over aquifers (underground lakes of water), we are resurrecting mature living water on its way up and not dead water on its way down.

At the Emerson College (Rudolf Steiner's<sup>3</sup> biodynamics) in Sussex, England, tutor, sculptor and designer John Wilkes has been working on the development of 'flowforms' which transmute and purify water as it flows through a course of basins shaped in such a way as to cause a double vortex in a figure of eight, creating lemniscatory oscillation (See p. 135). Aquarian will be using John Wilkes's 'Flowforms' to revitalise the desalinated water and, subsequently the soil, thus giving the plants additional life force and mineralisation to resist disease and attain their optimum yield.

Relatively litde attention has been paid to the nature and vital quality of the water used in research on plants and soil or

in studies or mixes for mortars and other building materials. There is a related technology that we may use, invented and developed by Wilfred Hacheney, based on vortexian motion, which is a water treatment machine consisting of a hyperbolic cylinder made of high grade steel and having, in the centre, a funnel shaped device placed over a blade rotating at six thousand rpm creating a non-euclidian path of motion. The enclosure shape and internal design of the cylindrical device causes a change in the direction of flow at regular intervals. At the moment of direction reversal, the water particles are subjected to extremely high acceleration, while any turbulence is avoided. This creates suction energy which is stored into the water in the form of micro-vortices. This process can be defined as a physical energising of the water which is hence called energised or 'E-water'.

Some of the laboratory-proven effects of water energised by such treatment are particularly interesting from our point of view, having as they do very practical and exciting applications:

1. Plants in soil watered with 'E-water' grow faster with many times higher seedling survival rate. This results in higher values for plant growth, crop yield, crop quality and resistance of the plants to disease and pests. Packaged produce and food products prepared from these plants have a considerably longer shelf life.

2. Aquarian has developed building materials which can be made using the finest wind-blown desert sand and by the conversion of toxic waste products, like gypsum sulphate, which is derived from scrubbing sulphur from the flue gases of coal fired power stations, and gypsum phosphate waste derived from the manufacture of artificial fertilizer. These toxic materials are actually transmuted into a previously unfamiliar form of non-toxic hydraulic binding material through heat controlled vortexian action. Such building materials are invaluable in our programme for on-site construction of desalination plants, irrigation systems, superior housing, workers' accommodation, schools etc and in deserts where the cost of shipping materials would render such programmes difficult. 'E-water' changes the mineral structure of such hydraulic binders or potentially hydraulic binding materials. The presence of 'E-water' in cement mixtures, hydraulic lines and dessicated clay or clay sand mixtures mainly results in the development of an amorphous structure

of the minerals instead of the normally expected crystalline mineral structure. This modification of the physical properties of the water mixed in this fashion with solid particles, creates unusually highly colloidal states\* which lead to the following practical effects: considerably higher bonding capacity of the neat cement; higher resistance in compression and bending of the concrete; chemical resistance of the concrete up to pH2. New materials containing clay made to meet specific physical requirements (e.g. elasticity, resistance, installation against noise and temperature, heat retention, absorption of the electro-magnetic radiation, etc.) can now be made without going through a furnace.

3. The building materials and products derived from gypsum waste (mentioned above) have been developed by an application of vortexian action induced by a warped Archimedes (or Tesla) screw. The screw induces a slow build-up of heat (as in the conversion underground of natural rain water) in the gypsum waste and converts it into a plaster-like hydraulic binder material which sets like stone similar to that in the Cheops Pyramid in Egypt. This can be mixed with fly ash or other aggregates and the subsequent products resist heat up to 2,400°C for several hours and cold to minus 170°C, representing a major breakthrough in construction and building safety. Variation of the production process permits selective control of the setting-time and/or permeability, and the material will set even underwater (fresh/salt). Conduits similar to those found in ancient Iran and Babylon can be made where water seeps at a controlled rate for underground irrigation without salination or evaporation, and is easily moulded into flowforms, irrigation canals or pipes. Pipes can be made, according to designs by Walter Baumgartner,<sup>4</sup> which use vortexian generation to propel the water to the point where it produces negative friction. This allows us to use vortex-action water pumps and Victor Sorokine's<sup>5</sup> 'Self-Adjusting Turbine' to transport irrigation/drinking water with little power consumption over vast areas of desert. Baumgartner, Hacheney, indeed, Walter Schauburger (Viktor's son) and others like

\*Activated water, when heated, removes the scale inside boilers; the adhering calcareous substance (the scale) is insoluble in ordinary water, but in this same water, activated, precipitates this calcareous substance in a colloidal form ... it is evident that activated water can have important effects on the organism, as living cells are mainly composed of colloids. (C. L. Kervan 1966)<sup>1</sup>

them, through their visionary and practical applications of vortexian energy are leading us into the 21 st century, with the prospect of virtually free energy and an understanding of Nature in all her workings.

These are special times demanding new solutions of simplicity and clarity to replace those crystalised structures which imprison our perspective of reality. We are, as a civilisation, trapped in a cycle of conditioned thought formulae which carry us like a whirlpool's vortex into foregone conclusions.

To obtain real solutions, one should no longer strive to deal with the symptom but its cause (which can usually be attributed to imbalance); for solutions often have nothing to do with the presented problems. This requires us to use the right hemisphere of our brain<sup>6</sup> to 'see' the solution using contemplation, brainstorming and lateral thinking; then only using the left hemisphere to work back deductively and scientifically in pinpointing the method to be used to implement the solution (but not to think!). We need to look at science in the same manner - simply and clearly, if we are to even grasp the works of Viktor Schauberger and other scientists like him who have broken from the mould of trying to understand the ways of Nature by reducing her wonders to formulae and calculations created by men for men. We need to look at the notions of the 'mysteries' of Nature which are 'mysteries' only to humanity. This does not stop Nature from working, from being, from existing. Nature stands apart from human intellect, but this does not mean we cannot work alongside Nature. Nature has no secrets — only we have limitations in the way we approach and understand Nature. This means more than seeing Nature as a reflection or a distortion of its mirror image, but as parallels or clones of which we can be but one example.

Water lives at all times, it just needs to be released from its confines that our use of it has until now put it in.

1. C. L. Kervan (recently deceased) wrote three books (in French) on biological transmutations which occur regularly in Nature e.g., plants taking up larger amounts of magnesium than were available to them in the soil (Aquarian plans to use this knowledge to regenerate and re-mineralise the soils in self-sustaining agroforestry through undergrowth decay of plants which naturally 'manufacture' minerals required by trees etc.). Considerable scientific interest has developed in Belgium, Switzerland and Japan as a result of this work.



2. Keely was a pioneer of sympathetic vibratory physics and like Viktor Schauberger, is still the source of important study groups. The focaliser and publicist of a journal is Dale Pond of Delta Spectrum Research Inc., 4810 Airport Road, Colorado Springs, Colorado 80916, USA.

3. Rudolf Steiner (1861-1925) was the founder of the Anthroposophical movement. He believed that humankind could help Nature take a step above herself. With our cooperation, something is created which natural processes alone would not bring about. Humankind, acting out of knowledge and with the help of Nature and her products, takes a step beyond Nature, assists in her development, becoming once again, a constructive participant in world evolution, not merely preserving and living from the fruits of the earth, but building and helping in Creation.

4. Walter P. Baumgartner is an expert on vortexian energy and its technical applications. He has a magazine "Energy Unlimited" offering news on scientific R&D in this field. (N.B. issue #20) Energy Unlimited, PO Box 3110, Laredo, Texas 78004, USA.

5. Victor Sorokine has over a thousand inventions of which many are concerned with water and the vortex. His vortex action Self Adjusting Turbine (Turbine Auto-Reglee) with constant C.O.E. up to 9896 is noiseless and without turbulence.

6. Buckminster Fuller in his book Critical Path stated that the only hope for humankind was that we use our transcendental mind (right hemisphere) for thinking and our left brain only for storage of information, as it is incapable of true thought. Astronaut Edgar Mitchell is noted for similar views and states that NASA trained all their astronauts to function this way as "up there that is all you can rely on". He calls the use of the left brain for thinking "the scourge of humankind".

The Aquarian Agency Ltd., is a global service agency and consultancy comprising people, technologies, and initiatives in over forty countries with an ever-evolving group vision and demonstration of what humanity and the technologies working with and for Nature can achieve. (Enquiries and/or participation welcomed.) Aquarian Agency Ltd, 405 Kingston Rd., Wimbledon Chase, London, SW20 8JS, England. Tel/fax (01) 543 5956

# APPENDIX II

## Physics and the Vortex

by Peter Hewitt

The concept of the vortex was central to Schauburger's work. It is also emerging to have application to fundamental physics. The vortex is a key principle which casts new light on the findings of physics. The vortex points to a completely new understanding of the physical world. At the same time, it opens the door to the super-physical.

To most of us, the physical world seems solid and substantial. Yet modern physics has shown quite clearly that this solidity is an illusion. Matter is made up of atoms and these atoms themselves are mainly empty space, containing sub-atomic particles such as protons and electrons in constant movement.

These sub-atomic particles themselves are far from substantial. Ever since Einstein, we have known that matter is equivalent to energy. Particles, in some way, are bundles of pure energy.

But this equivalence of matter and energy is a mystery. No one understands how particles of matter, seemingly so stable, can be a form of energy, which is dynamic and ephemeral. Modern physics knows that this is so, and exploits this fact, without understanding why.

It is this central mystery of modern physics that the vortex can explain. The new idea is that a sub-atomic particle is a vortex of energy. This is a simple principle, but it has immense power. The vortex has the potential to provide an entirely new foundation for physics.

The vortex begins to explain the properties of particles for the first time. Particles are a paradox in physics. Sometimes they behave as little point-like things; sometimes they behave as waves. If particles are really vortices of energy, many of these paradoxes can be resolved. The complexity of physics melts away.

Einstein described matter as "frozen energy". The vortex shows that the energy in matter, so far from being frozen, is in constant movement. From this starting point, it is easy to explain the dynamic properties of particles.

Matter acts dynamically on other bits of matter. It can even act 'at a distance' - across apparently empty space. We are all familiar with the way two magnets bounce off each other- or attract - without touching. If particles are pictured as inert 'blobs' of material, these effects are very hard to explain. But if particles of matter are really extended vortices, it becomes very easy to see how they can interact with each other to create such effects as electric charge and magnetism.

The vortex, as it is developed, shows that even apparently empty space is full of energy. It makes clear how this energy relates to matter, and how 'subtle' energies interact with the physical world.

Some of the extraordinary effects that Schauburger produced may be explicable in terms of a resonance effect between these subtle energies and the energy in matter. Vortices in air or water, moving in the same form as the underlying energy in matter, could exchange energy with them. This principle can be seen in the tuning fork. Sound a tuning fork in a room with the piano, and every string on the piano tuned to that note will start to vibrate in sympathy. The enormous energies released through Schauburger's vortex might be the result of a similar resonance effect. If so, he may have found away of tapping not only the energy locked up in matter, but also the 'cosmic' energies of space.

These ideas are admittedly speculative. But they point to a possible explanation of otherwise mysterious and inexplicable phenomena. Since Schauburger, others have built flying saucers and 'energy machines' that run on no fuel. But invariably they have little or no idea why they work and, lacking such insight, progress only when underpinned with adequate theoretical foundations. It may be that the new physics of the vortex could one day provide the framework of theory that enables Schauburger's vortex to be exploited to the full.

Peter Hewitt has been working since 1987 with David Ash, the originator of the physics of the vortex. Together they are writing a series of books, the first of which *Science of the Gods* is published by Gateway Books. (Sept. 1990).

# NOTES

1 This description is not as fantastic as it first appears. A body's ability to float in a liquid is dependent on the relationship between the specific weight of the body and that of the liquid. If the liquid has a higher specific weight than the body, the latter floats. If the liquid can be concentrated, as for example, by a certain kind of swirling motion, its specific weight is increased. Anyone can make the following test: take a test tube 30-50cm long with an inner diameter 5-8cm. Fill it with water. Carefully insert an egg which will sink to the bottom. With a suitable stirring, which can be quite gentle, the egg rises to the surface, and stays there until the motion ceases. In the case of the dancing stones, the water was already concentrated (it was a natural stream, in a natural setting, and the night was cold). For further information see Kosmische Evolution, No.4, 1969, p.24 ('Die Scheinbare Dichtesteigerung Von Wasser in Einroll Wirbel' - 'The apparent increase in water density in simple whirlpools').

2 Cycloid space-curve motion is a central theme of Schauberger's thinking. He speaks even of 'planetary motion' and 'imploding motion'. Think of a particle gliding along a spiralling thread wound around a cone, towards its tip, for an impression of this motion.

3 Jurgen Sauk is carrying out a water regulating scheme in Brazil (following Schauberger's methods) on the 800 kilometre Panama River (1979): Implosion No. 63.

4 Harry Martinsson: 'The silt in a river always carries the potential of becoming soil to sustain plant life.'

5 This understanding of Schauberger's seems to be confirmed by the New Zealand physicist B. St Clair-Corcoran. He calculates a country's rational use of natural resources by testing the quality of the water. In this context 'rational' means such usage that preserves nature's dynamic ecological balance. By measuring the water's negative entropy, 'Negentropy' i.e. characteristics of its molecular structure, a statistical understanding can be obtained of what Corcoran means by the water's quality: its ability optimally to transport material is healthy energy. As the landscape's ecological condition also effects 'negentropy', it becomes an indicator of how a country treats its forests, land and watercourses, etc (Journal of Hydrology, N.Z. vol.10, No. 2, 1971).

6 Die Wasserwirtschaft, No. 24, 1930.

7 Schauburger did not believe that the blood was pumped by the heart, but had its own power of motion, like water. This has also, more recently, been shown by Professor Manteufel, Warsaw ('The Heart is not a Pump') *Komische Evolution* 2, 1971.

8 S. Hedin: *The Flight of Large Horses*, P. 40, Stockholm (1935).

9 In *Varle Och Vetande*, No. 1, 1966, J. Westbury describes similar occurrences on Scottish lochs to those on the Odemark lakes.

10 Schauburger thoroughly investigates this in *Hydrotechnology*, No. 20, 1930.

11 Schauburger here means the influence that the pipe material has on the resistance to flow. See the experiment in Niirnborg.

12 Dr W Drobeck, head of Hamburg's waterworks, with the help of the so-called 'Steigbild' (growth pattern) investigations (water is absorbed in a suspended strip of filter paper) reveals clear changes in water that has been exposed to centrifugal treatment, e.g. pressure pump. 'Gedanken ubereine Grosstadt Wasser-Versorgung' (Ideas on the water supply for a large town). *Das Gas-und-Wasserfach*, 108, 1967, H40, 52, 109; 1968, H8).

13 Schauburger is probably here referring to the situation in Central Europe.

14 This building-up of metal has also been verified by Professor P. Baranger at the Ecole Polytechnique in Paris (*Modern Earth*, Paris, 1960). Baranger found that it was not only a concentration of metals from the soil at the place of growth, but an actual new formation of them.

15 The centrifugal form of motion can be equated to the principle of entropy in physics (all processes of energy move towards the highest disorder). The centripetal form of motion of negative entropy, found for example within the bio-electrical potential of the living cell, has, on the other hand, the potential for energy to move towards order. (See, for example, E. Schroedinger: *What is Life?* (Cambridge, 1951).

16 Diamagnetism is what is sometimes referred to as cross-magnetism, when certain bodies, subjected to a magnetic field, take up a position at right angles to the magnetic axis, that is east-west instead of north-south.

17 It is important to note that Schauburger's biological magnetism is not the same as the diamagnetism of physics. His 'biological magnetism' is more to do with trace elements and 'chromosomes'. See Footnote 18.

18 What Schauburger called 'trace elements' and the 'chromosomes' of air and water are not trace elements and chromosomes in the generally accepted sense, but his terms for the 'smallest forms of living substance', when an organism decays in death. They then exist as indifferent, unconscious life carriers, until they are sucked into one of the two motions. It is of interest to compare this theory with that of Professor Bechamp's concerning 'microsymers', the cell's physiologically indestructible element, that he considers to be active in life's construction as well as destruction. (See A. Waerland, Vagen Till en ny Mansklihet, (The

way to a new humanity, Halsans Forlag, Linköping). In Wiener Medizinische Wochenschrift, Nos.37-38, 1951, H.P. Rusch and Anto presented proof that the cell centre, the genes, chromosomes etc. do not die when the organism dies, but continue to exist by changing into other special forms.

19 Implosion, No. 41, p.23. The last model of this machine was taken to the U.S.A. in 1958 and was kept by the Americans.

20 Implosion, No.49 (Kokaly, A, 'Das Erbe Viktor Schaubberger').

21 The tests have been taken up by Swedish bionic researchers in recent years. Results of these are presented in Implosion, No. 6.

22 In Implosion, No.9, Walter Schaubberger presented the idea of the 'biocondensator', that is formed by the geosphere and atmosphere and the insulation cover in between. His presentation provides a new and interesting understanding of growth.

23 In biological, ecological agriculture, as expounded by Dr H. Muller and H. P. Rusch the importance of a constant soil cover is stressed. See, Rusch Naturwissenschaft von Morgen, (Rusch, Tomorrow's Natural Science), Frankfurt/Main and Cibulka den Fruktbare Tradgarden (The Fruitful Garden) (Orbio, Box 6002, 600 06 Norrköping).

24 It is unclear here, what Schaubberger means by 'neutral voltage' and 'neutral charge'. Possibly he thinks that the layer between the negative geosphere and the positive atmosphere can attract either polarity, depending on other circumstances (see also note 48).

25 Schaubberger, using the term 'fructification' means, in general, the use of all carbon and hydrogen compounds, while 'fertilization' includes all oxygen compounds.

26 The rationale behind 'sun ploughing' was that the upturned sod should not only be exposed to the sun along one side, as it would then become too hot, and 'discharge' its energy.

27 Presented in the Institution's Yearbook 1949, 1952, pp. 109-112.

28 Walter Schaubberger has since patented a 'biometal alloy' for farming and gardening equipment. These are sold by, amongst others, the Biotechnisch Geräte GmbH, 5604, Neviges (Rhld). Successful tests with these tools have been carried out.

29 Positive results from experiments with the 'repulsator' are outlined in Implosion No. 42.

30 The experiment has been repeated by Swedish bionic scientists with similar results.

31 Professor Popel's findings are published in Komische Evolution No. 3, 1977.

32 The New Zealand scientist Brian St. Clair Corcoran has also developed a world model in which the universe has a spiral structure, quite independently of Schaubberger's research.

34 Water not exposed to sunlight has a greater density and vitality. Its inner structure becomes changed and weakened by an increase in temperature.

35 Prince Adolph was so pleased with Schauberger's efforts that he wanted to bestow upon him the title of Forstmeister. Since Schauberger did not have the requisite degree in forestry, to have done so would have outraged all the other Forstmeisters (Forest Superintendent). However, not to be thwarted in his desire to reward Schauberger for his services, Prince Adolph awarded him the title of Wildmeister or 'master of the wilderness', a term specially coined for him.

36 Schauberger's log flume allowed commercial exploitation of virgin forests which had been inaccessible to the foresters because of the nature of the terrain. He was so upset at having to witness the brutal damage done to natural forests exploited by short-sighted greed. Rather than have to take responsibility for the conditions of the forest that he saw would be inevitable, he resigned from the Prince's employ, without taking a penny.

It was after this that he was offered employment with the government, and was eventually raised to the level of grade three hofrat (literally court counsellor). His unconventional background and personality made him much resented by all the other hofrats, which caused him in the end to resign from government service.

37 Schauberger felt quite put out by being given only a gold watch for his efforts, when Steinhard received a million schillings as a result of Schauberger's ingenuity and knowledge. He thought it underhand and quite unfair.

38 With a rise in the general temperature level due to deforestation, the ground becomes too 'hot' to support water at a temperature of around  $4^{\circ}\text{C}$  at its normal natural distance from the surface. On the basis of the Archimedian principle, water can only 'float' at a level of equal temperatures. When the ground temperature rises, the  $+4^{\circ}\text{C}$  water table must fall.

42 Nuclear power, in terms of atomic fusion, or atomic transformation, he might have applauded, but not atomic fission, or splitting the atom, of which he spoke in very critical terms.

43 According to Walter Schauberger, Viktor's machines were too inflexible, and could only function within a narrow margin of temperatures and speeds. This was not Viktor Schauberger's fault, as much as the shortcomings of a technology which could not construct 'machines' according to Nature's geometrical and dynamic systems.

44 Or as Walter Schauberger says: 'The heart doesn't pump, it is pumped!'

45 The version that Walter Schauberger tells of this experience of his father is slightly different. Viktor Schauberger received a pension as a result of a war wound from the First World War. All such pensioners were required

to have an examination every three years. On the day of his physical examination, he was having coffee in Berlin with a certain Mrs Mada Primavesi, an old friend who admired his work. During their conversation, Schauberger asked if she would mind waiting for twenty minutes, while he went for his triennial examination, which normally took only five minutes in a nearby clinic. After her fourth cup of coffee, Mrs Primavesi began to get upset, and after waiting 1 1/2 hours left for Schauberger's home. But his wife said that he had not returned. Mrs Primavesi became quite concerned, knowing that Schauberger was not one to break his word or behave irresponsibly.

Moving in the highest social circles of the Third Reich, Mrs Primavesi Schauberger was not to be found. Mrs Primavesi however, refused to leave the clinic until Schauberger's whereabouts had been accounted for. After further questioning of the staff yielded nothing, and there was no record of his appointment, Professor Fotzl and Mrs Primavesi made a room-to-room search of the whole clinic. Viktor Schauberger was eventually found in the lunatic section. He had been trussed up in a straight-jacket on a bed in a steel cage. He was outwardly quite calm, while the other lunatics around him rattled their cages in anger. Viktor Schauberger had determined to remain composed in the hope of being able to convince someone of his sanity.

He had been lured into the clinic in order to be disposed of quietly. In those days in Germany it was normal practice to inject lunatics with a lethal dose of sleeping drugs, so that the facilities could be put to better use. Viktor Schauberger would have fared likewise. Professor Fotzl insisted he knew nothing of this, and after many apologies, wrote out a certificate confirming Schauberger's sanity.

Had it not been for Mrs Primavesi's perseverance, and their fortunate meeting, Schauberger would have disappeared without a trace, to the This was only intended as a temporary measure, an excuse to get him into the army, so that he could be transferred to the Waffen SS under would set up a resonance with the contents and/or shape of the barrel, which would stimulate the molecular vibration of the contents.

46 This was only intended as a temporary measure, an excuse to get him into the army, so that he could be transferred to the Woffen SS under Himmler, which as a non-German or Austrian citizen, he could otherwise have resisted. He was never fit enough to fight

47 Through experience, the farmer would learn at what pitch his voice would set up a resonance with the contents and/or shape of the barrel, which would stimulate the molecular vinration of the contents.

This Tonsingen or 'singing to clay' would be done at specific times, such as immediately after planting and firming of the seed in the soil (roughly at Eastertime). The Tonsingen was generally ridiculed, so the farmers performed this practice in secret, so that it disappeared more and more from the knowledge of later generations.

The essential features of this practice were that, towards the evening



the clay loam should be stirred into cooling water with a large wooden spoon. When stirred towards the right, the mixing would be accompanied by ascending notes or cadences, and when stirred towards the left, with descending tones. The clay loam would be stimulated by a variety of vocal sounds. Due to the fermentation process taking place in cooling water in a state of darkness, the CO<sub>2</sub> breathed out by the ferment, which is drawn towards the surface of the water by the loud singing, become bound.

Good clay contains aluminium, which, through being stirred to the sound of singing, becomes freely bound within the water in a very fine state. Early in the morning, the old farmer took his barrel out to the fields. He would take hold of a strong palm frond, and sprinkle the freshly rolled fields, as a priest does his communicants. In this way it was possible for the farmer to distribute over his land in very fine distillations.

48 The layer 'the virgin hymen' is a dielectric layer enabling the vegetation to act as a biocondenser. The condenser effect is achieved when the positive and negative charges are separated by a non-conducting (dielectric) layer. The greater the positive charge on one side of the condenser, so the negative charge on the other side will be increased, the two opposite charges tending always to equalize.

50 A high grade molecular quality of the meal was achieved.

51 A super phosphate(an artificial fertilizer) which is obtained through heat processes which destroy many molecular and trace elements.

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I: for the periodical Implosion

KE: for the periodical Kosmische Evolution

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